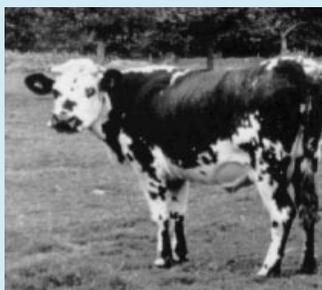
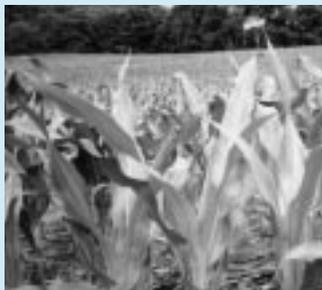


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Crop Prices . . . Ozone & Food Safety . . . Wetlands Protection . . . Global Meat Production & Trade

Large Supplies Color Markets

Large U.S. supplies in 1998/99 will reduce season-average farm prices for most field crops from 1997/98, based on USDA's first 1998/99 forecasts of U.S. and world supply and demand. After surging to record highs during 1995 and 1996, grain prices are forecast to return to the levels of the early 1990's, while soybean prices will return to levels last seen in the 1980's. The slump also reflects weaker foreign demand. Although lower prices will encourage gains in domestic consumption in 1998/99, export growth will be relatively limited because of larger supplies in some competing countries and weak import demand resulting from the Asian economic crisis.

Red meat and poultry production will remain large in 1999, about unchanged from 1998. Increases in pork and broiler production will likely offset a sharp decline in beef production. Primary market prices for hogs and poultry are expected to be about the same as in 1998, while cattle prices rise. Despite stagnant hog and poultry prices in 1999, producer returns are expected to improve as feed costs decline.

Growth Slowing for U.S. Red Meat & Poultry Exports

U.S. red meat—beef and pork—and poultry meat exports are expected to grow about 2 percent in 1998 and 1999, a sharp slowdown from the double-digit rates that have prevailed in the 1990's. Production is expected to increase about 3 percent in 1998 and remain about the same in 1999. Reduced demand in Asian markets, especially Japan and Korea, will lead to significantly reduced U.S. meat exports to the region this year. However, strong demand in Russia and Mexico will help U.S. meat exports continue to grow. In 1998, Russia is projected to increase its total meat imports to about 2.5 million tons, and Mexico's meat consumption is expected to grow faster than its production in 1998, resulting in a 15-percent increase in meat imports.



Livestock Sectors Restructure in CEE/NIS Countries

One of the most dramatic adjustments brought on by liberalization of the economies of Central and Eastern Europe (CEE) and the Newly Independent States (NIS) has been the virtual free fall in their livestock sectors. In that liberalization, consumer and producer subsidies for meat were eliminated, and producers were exposed to new international competition. Consumer demand plummeted, and producers were increasingly squeezed between falling output prices and skyrocketing production costs. The result was a drastic decline in livestock inventories of all kinds.

The situation is beginning to change, however, in some of the transition economies, particularly in the CEE countries. In general, the restructuring process is quite far along in Poland and Hungary, but remains incomplete in most of the NIS countries. A major impediment to the complete restructuring of the region's livestock sectors is the poor development of institutions needed to support markets, including clearly defined property rights, bankruptcy procedures, enforcement of contracts, a credit system, and market infrastructure.

Enhancing Food Safety With Ozone

Ozone recently gained approval for use in the U.S. food processing industry as a disinfectant wash or spray to help rid food of dangerous pathogens (bacteria, parasites, fungi, and viruses). When dispersed into water, ozone (a form of oxygen) can kill bacteria—like *E. coli*—faster than traditionally used disinfectants, such as chlorine. Most bottled water is safely treated with ozone, and nearly 200 municipal water treatment plants in the U.S. employ ozone to help cleanse their drinking water. The adoption of ozone technology in food processing depends upon economic competitiveness with existing and emerging technologies that sanitize food, as well as its effectiveness in enhancing food safety.

Agriculture & Wetlands: Is "No Net Loss" Achievable?

Wetlands have figured prominently in policy debates since the mid-1970's; public benefits of keeping wetlands in their natural state often run counter to private interests in converting wetlands. Federal wetlands programs have evolved from incentives for conversion, to regulatory programs for conservation and incentives that encourage restoration and retention.

Given the difficulty in estimating public benefits and private costs, the best use of wetlands is uncertain. "No net loss" of wetlands is a Federal policy goal that emerged in 1989 and that has garnered bipartisan support, reflecting a compromise between those who believe that too few wetlands have been converted and those who believe that too many have been lost. The U.S. appears to be approaching achievement of "no net loss" of wetland acreage in the 1990's. But the goal may not be sustained if economic conditions spur additional wetland conversion, if wetland provisions of the Clean Water Act are weakened, if the link between wetland preservation and farm program payments is diminished, or if Federal funding for wetland restoration programs is reduced or eliminated.

Briefs

Field Crops

Grain & Soybean Prices Forecast Lower in 1998/99

Large U.S. supplies in 1998/99 will reduce season-average farm prices for most field crops from 1997/98, based on USDA's first 1998/99 forecasts of U.S. and world supply and demand. After surging to record highs during 1995 and 1996, grain prices are forecast to return to the levels of the early 1990's, while soybean prices will return to levels last seen in the 1980's. The slump also reflects weaker foreign demand. Although lower prices will encourage gains in domestic consumption in 1998/99, export growth will be relatively limited because of larger supplies in some competing countries and weak import demand resulting from the Asian economic crisis.

Planted area for field crops, except winter wheat, is based on USDA's Prospective Plantings report for 1998, released on March 31. Harvested area is based on historical averages of harvested-to-planted ratios, and yields are derived from historical trends or averages, with the exception of winter wheat where survey results are used. Since planting is still underway and harvest is several months away for most crops, growing conditions could change substantially, resulting in significantly different production. U.S. crop prices will be influenced not only by weather conditions in the U.S. and other countries, but also by changing demand conditions, both in the U.S. and globally.

U.S. soybean production is expected to top last year's record. Foreign supplies are already huge, with a record South American soybean harvest nearly complete. As a result, soybean farm prices are projected at \$4.75 to \$5.75 per bushel, the lowest level in over 10 years. U.S. acreage is forecast record large as farmers, particularly in the Corn Belt, shift toward soybeans. The estimated 1998/99 yield of 39.5 bushels per acre would be the highest since the 1994/95 record. Soybean yield growth has accelerated in recent years, due in part to increased narrow-row plantings.

USDA projects higher U.S. soybean exports in 1998/99, but gains will be smaller than last year as competition with South American supplies remains strong in the early stages of the crop year. A smaller gain is also projected for domestic crush, primarily due to greater competition from foreign protein meal suppliers in the world market and some slowing in foreign demand, particularly in Asia. Larger carry-in stocks and record output will outweigh increases in domestic and foreign demand, boosting projected ending soybean stocks to the highest level since 1986/87.

Reflecting a healthy increase in expected supply and the likelihood of continued export weakness, corn prices are expected to decline in 1998/99. The season-average farm price is projected at \$2.05-\$2.45 per bushel, compared with \$2.40-\$2.50 estimated for 1997/98 and the \$2.63 average of the last 5 years (including 1997/98).

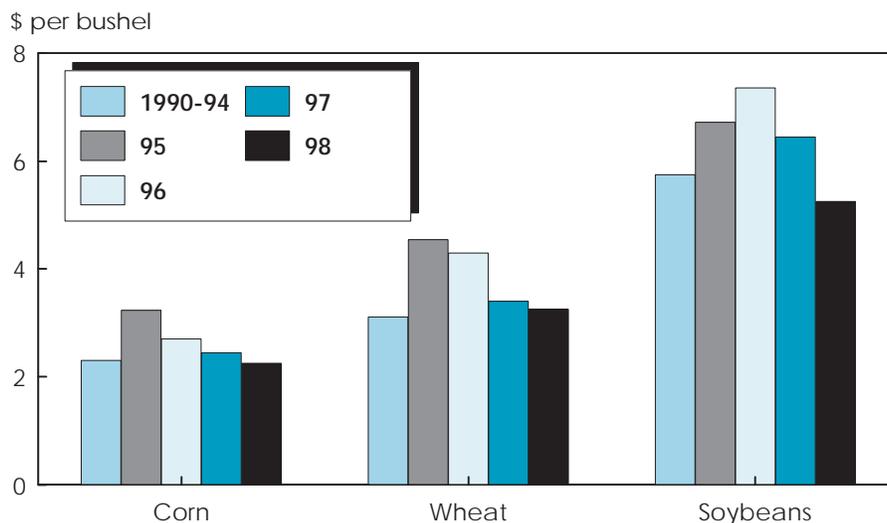
The 1998 U.S. corn crop is forecast to be the largest since the 1994/95 record—

yields are projected to rebound to the long-term trend and acreage is also forecast higher. Ending stocks of corn are expected to climb to the highest level since 1992/93, despite a projected rise in use in 1998/99 (with total demand second only to the 1994/95 record). Moderate growth in domestic use reflects slowing growth by livestock and ethanol producers. Reduced competition from Eastern Europe and China will contribute to higher U.S. exports in 1998/99. However, gains will be muted with continued strong competition from Argentina, along with slack demand from East Asia due to the economic crisis, and reduced imports from Taiwan because of a smaller hog population (see **Commodity Spotlight**).

Lower acreage and yields will reduce the U.S. wheat crop 7 percent in 1998. In response to price drops, farmers are reducing wheat area and seeking alternative crops. Wheat prices declined in 1997/98 as global wheat production reached a record level, with the U.S. harvesting its largest crop in 7 years.

Despite the smaller 1998 U.S. crop, large carry-in stocks will expand total supplies to the highest level since 1990/91 and push down the average farm price for wheat to \$3.05-\$3.45 per bushel for 1998/98, compared with \$3.40 estimated for 1997/98.

Corn and Wheat Prices To Return to Levels of the Early 1990's



1998 forecasts. Corn bushel = 56 lbs., wheat = 60 lbs., and soybeans = 60 lbs.
U.S. season-average farm prices for marketing season beginning in year indicated.
Economic Research Service, USDA

U.S. Field Crops—Market Outlook

	Area		Yield	Output	Total supply	Domestic use	Exports	Ending stocks	Farm price
	Planted	Harvested							
	— Mil. acres —		Bu/acre	— Mil. bu —					\$/bu
Wheat									
1997/98	71.0	63.6	39.7	2,527	3,060	1,260	1,035	766	3.40
1998/99	67.0	60.5	38.9	2,356	3,211	1,320	1,125	766	3.05-3.45
Corn									
1997/98	80.2	73.7	127.0	9,366	10,259	7,525	1,475	1,259	2.40-2.50
1998/99	80.8	74.4	129.6	9,640	10,909	7,725	1,575	1,609	2.05-2.45
Sorghum									
1997/98	10.1	9.4	69.5	653	701	460	200	41	2.15-2.25
1998/99	9.0	8.0	68.5	545	586	335	200	51	1.90-2.30
Barley									
1997/98	6.9	6.4	58.3	374	519	332	75	112	2.35
1998/99	6.8	6.4	59.8	380	527	382	25	120	1.90-2.30
Oats									
1997/98	5.2	2.9	60.5	176	353	270	2	81	1.60
1998/99	5.2	3.1	58.9	180	361	270	2	89	1.05-1.45
Soybeans									
1997/98	70.9	69.9	39.0	2,727	2,865	1,710	915	240	6.45
1998/99	72.0	70.9	39.5	2,800	3,046	1,711	925	410	4.75-5.75
Rice									
			Lbs./acre		— Mil. cwt (rough equiv.) —				\$/cwt
1997/98	3.06	3.03	5,896	178.9	215.4	106.9	84	24.5	9.60-9.80
1998/99	3.09	3.06	5,980	183.0	217.2	108.9	83	25.3	9.20-10.20
Cotton									
			Lbs./acre		— Mil. bales —				c/lb.
1997/98	13.8	13.3	680	18.8	22.8	11.5	7.5	3.8	64.9
1998/99	13.22	12.3	650	16.7	20.5	11.5	6.0	3.0	*

Based on May 12, 1998 *World Agricultural Supply and Demand Estimates*.

*USDA is prohibited from publishing cotton price projections.

See table 17 for complete definition of terms and data for prior years.

Economic Research Service, USDA

Domestic use for wheat is projected to increase in 1998/99. Food use continues its long-term growth trend, and the greater availability of wheat makes wheat feeding an attractive option. Wheat exports are also projected to be higher for 1998/99 as reduced supplies from competitors such as Argentina and Canada allow the U.S. to regain some market share. However, the U.S. will face continued strong export competition in 1998/99 from both Australia and the European Union, whose supplies are projected to be unchanged or larger.

Rice production is projected to be 2 percent greater in 1998/99, the second-largest crop ever produced. Unlike soybeans, corn, and wheat, the expectations for rice in 1998/99 are considerably more favorable as demand, both domestic and foreign, is projected to remain strong. As a result, the average farm price is projected

to remain firm at \$9.20-\$10.20 per cwt, compared with \$9.60-\$9.80 in 1997/98.

Domestic rice consumption has continued to expand because of a growing share of the U.S. population with Asian and Latin American heritage and a greater emphasis on healthier diets. U.S. rice exports have risen with strong demand for rough rice from Latin America.

Cotton production for 1998/99 is projected to be 11 percent lower than 1997/98 because of acreage declines and lower expected yields (returning to the 1993-97 average). With cotton prices down for the second straight year, intended cotton acreage is down in both the Delta region and the Southeast for 1998.

Domestic mill use is projected to remain unchanged from 1997/98, as rising textile imports are expected to offset growth in retail cotton consumption. Cotton exports

are projected to be 20 percent lower in 1998/99 because of reduced U.S. supplies and greater foreign competition. Nevertheless, total cotton demand is projected to exceed production during 1998/99, resulting in lower ending stocks.

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June Releases—USDA's Agricultural Statistics Board

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

June

- 1 Crop Progress (after 4 p.m.)
- 3 Broiler Hatchery
Dairy Products
- 4 Egg Products
Poultry Slaughter
- 5 Cheddar Cheese Prices (8:30 a.m.)
Minn.-Wisc. Base Month Price, Final 1995-97
- 8 Crop Progress (after 4 p.m.)
- 10 Broiler Hatchery
- 12 Cheddar Cheese Prices (8:30 a.m.)
Crop Production (8:30 a.m.)
- 15 Milk Production
Crop Progress (after 4 p.m.)
- 16 Turkey Hatchery
- 17 Broiler Hatchery
- 19 Cheddar Cheese Prices (8:30 a.m.)
Cattle on Feed
Cold Storage
Livestock Slaughter
- 22 Crop Progress (after 4 p.m.)
- 23 Chickens and Eggs
- 24 Broiler Hatchery
Catfish Processing
- 25 Cherry Production
- 26 Cheddar Cheese Prices (8:30 a.m.)
Hogs and Pigs
Peanut Stocks and Processing
- 29 Agricultural Prices
Crop Progress (after 4 p.m.)
- 30 Acreage (8:30 a.m.)
Grain Stocks (8:30 a.m.)

Briefs

Livestock, Dairy & Poultry**Large U.S. Meat & Poultry Production In 1999**

Red meat and poultry production in 1999 is forecast at 79 billion pounds, about unchanged from 1998. Increases in pork and broiler production will likely offset a sharp decline in beef production. Primary market prices for hogs and poultry are expected to be about the same as in 1998, while cattle prices rise. Hog prices likely will remain in the high \$30's per cwt, wholesale broilers near 55 cents per pound, turkeys near 60 cents per pound, while average Choice steer prices will likely rise from the mid-\$60's per cwt in 1998 to the low \$70's next year. Despite stagnant hog and poultry prices in 1999, producer returns are expected to improve as feed costs decline. The general inflation rate is expected to rise only about 2 percent, keeping costs of other inputs in check.

In 1999, U.S. exports of red meat and poultry are forecast to rise about 3 percent, up from only about a 2-percent rise in 1998, but well below the double-digit growth during the first half of the 1990's. Meat import growth is expected to taper off to 3 percent in 1999 from 10 percent this year. Rising beef imports account for the increases, as more processing beef is imported to offset low domestic cow slaughter. Red meat imports generally declined in the early and mid-1990's.

Beef production should begin to decline sharply in 1999, reflecting reductions in the cattle inventory since 1996. Despite the near 6-percent drop, production will remain historically large. With the exception of the near-records during 1994-98 (ranging from 24.3 to 25.4 billion pounds), production in 1999 will be the largest since 1978. (The record is 25.7 billion pounds in 1976 when cattle inventories were liquidated rapidly.) Beef production is forecast nearly unchanged this year from 1997, supported by increased heifer slaughter and record slaughter weights. Declining cattle inventories will continue to reduce feedlot placements over the next couple of years. Lower feeder cattle supplies will combine with increased heifer retention (for herd rebuilding) to reduce

beef production sharply beginning this fall through at least 2000.

Strong heifer retention—encouraged by relatively low feed costs and good forage and grazing prospects—is expected this summer, beginning the initial phase of stabilizing the cattle inventory. An expected increase in corn and soybean plantings, favorable moisture and planting conditions in most grain- and soybean-producing areas, and continued slow grain export sales will likely hold down feed costs for the next year. Present moisture conditions also suggest much improved grazing and forage prospects.

Last summer, grazing conditions deteriorated and grain prospects were clouded by poor weather at the very time many producers had to decide whether to retain heifers for herd replacements or sell them. Many heifers were sold and placed in feedlots throughout the fall, bolstering beef supplies in the first half of 1998. Unless grazing and grain prospects decline sharply, many more heifers will be bred this summer to calve in 1999, setting the stage for at least modest herd expansion beginning in 2000.

Fed-cattle prices remain under pressure from large beef and record total meat supplies. A slowdown in the pace of beef exports, particularly to South Korea and Japan, is also moderating price gains. Prices have strengthened from the low \$60's per cwt in first-quarter 1998 to the mid-\$60's this spring. Prices will likely remain there until rising to the low \$70's this fall as beef supplies tighten. Last year, prices averaged nearly \$66 per cwt in every quarter. Record total meat supplies (with prices of other meats declining relative to beef) will hold down price gains in 1999. Fed-cattle prices are likely to average in the low to mid-\$70's.

As supplies decline this fall and in 1999, retail prices for Choice beef are likely to rise into the mid-\$2.80's, up from a forecast \$2.80 in 1998 (unchanged from the

1996 and 1997 averages), but well below the \$2.93 record in 1993. This record may be safe even in 2000, when per capita beef supplies are likely to be the tightest, as continued large supplies of pork and poultry at relatively lower prices stifle price advances. In addition, a larger proportion of Prime and Choice beef has entered the hotel-restaurant and export markets in recent years. A trend toward offering beef with lower and more variable quality at retail makes it increasingly difficult to maintain consumer acceptance and raise prices. Meanwhile, improved eating quality consistency and increased cut sizes have made both white-meat chicken and pork loins more competitive with beef.

The financial crisis in Asia will likely remain a drag on beef trade through 1999, but it could ease in the latter part of the year if financial reforms stimulate consumer confidence. Stagnating demand is expected to limit U.S. sales to Korea. But continued strong growth in exports to Mexico and an expected modest increase to Japan could boost U.S. beef exports by 3 percent to 2.1 billion pounds in 1999.

Tightening supplies of processing beef in the U.S. are expected to increase demand for imported beef. If the Australia-U.S. exchange rate remains at its current level, imports from Australia should increase. Given the increased price of domestic processing beef, the U.S. will likely be a destination for foreign product squeezed out of Asia. U.S. imports in 1999 could increase about 5 percent to 2.8 billion pounds.

Pork production is expected to rise about 2 percent in 1999, after posting a nearly 10-percent gain in 1998. Although per capita pork supplies are expected to rise, hog prices are expected to be about the same as in 1998 due to the sharp reduction in beef supplies. With abundant pork supplies and reduced beef available, retailers will likely favor pork over beef for featuring. Retail pork prices could edge lower in 1999 due to this increased featuring and to a narrowing of the farm-retail price spreads from record-wide spreads in 1998.

This year, the nearly double-digit rise in pork production, along with a 3-percent

U.S. Livestock and Poultry Products—Market Outlook

		Beginning stocks	Production	Imports	Total supply	Exports	Ending stocks	Consumption		Primary market price
								Total	Per capita	
					Million lbs.			Lbs.		\$/cwt
Beef	1998	465	25,396	2,675	28,536	2,085	350	26,101	67.6	65-68
	1999	350	23,931	2,800	27,081	2,155	350	24,576	63.1	70-76
Pork	1998	408	18,917	600	19,925	1,075	470	18,380	52.8	36-38
	1999	470	19,380	570	20,420	1,120	490	18,810	53.5	36-39
Broilers	1998	607	27,964	4	28,575	4,925	650	23,000	73.9	56-59
	1999	650	29,141	4	29,795	5,025	650	24,120	76.9	55-59
Turkeys	1998	415	5,448	1	5,864	557	425	4,881	18.1	59-62
	1999	425	5,359	1	5,785	600	400	4,784	17.5	60-64
Eggs*	1998	7.4	6,631.9	4.5	6,643.8	236.0	10.0	5,470.9	242.9	75-78
	1999	10.0	6,765.0	4.0	6,779.0	243.0	10.0	5,556.0	244.5	70-76

Based on May 12, 1998 *World Agricultural Supply and Demand Estimates*.

*Total consumption does not include eggs used for hatching.

See appendix tables 10 and 11 for complete definition of terms.

Economic Research Service, USDA

rise in competing meat supplies and a lackluster pork export market, is expected to pressure hog prices down about a third from 1997. Hog producers, particularly those with higher costs, are facing a profit squeeze, though lower feed costs are softening the effect of low hog prices. Declining feed costs may push cash costs down into the low to mid-\$30's per cwt, forestalling a liquidation of the breeding herd. Modest expansion by large, lower-cost producers is expected to continue, while the exit of higher-cost producers may have accelerated.

Pork exports are expected to increase 3 percent in 1999 as Mexico and Russia purchase attractively priced lower-value products. Despite the appreciation of the dollar against the yen, shipments to Japan are expected to remain relatively steady. Japan is the largest U.S. customer for the higher-valued pork products.

Broiler production is expected to continue growing slowly in 1999, up 4 percent after increases of 3.5 percent in 1997 and 1998. Broiler producers are expected to remain cautious when making production decisions, as there will continue to be very large domestic meat supplies and

uncertainty in the export market. Lower feed costs in 1998 will more than offset lower broiler prices and improve net returns to broiler producers.

Broiler exports in 1999 are expected to reach 5.025 billion pounds, up only slightly from 1998's forecast 4.924 billion pounds. Slower growth is expected in shipments to Russia, other Newly Independent States (plus the Baltics), Mexico, South Africa, and a number of Asian markets (chiefly Japan). U.S. poultry exports to Hong Kong are forecast to rebound somewhat in 1999, but remain below 1997. U.S. poultry exports will also face strong competition from U.S. pork exports and foreign poultry producers—U.S. pork exports compete as a prime ingredient in processed products and sausage.

Turkey production is expected to decline in 1999 after 3 years of negative returns for turkey producers. Modest export demand and competition from large pork supplies in the domestic market are expected to prevent price rises. Some turkey production facilities will convert to chicken production. Turkey exports are expected to grow to 600 million pounds in 1999 after falling to a forecast 557 million

pounds in 1998. Continued growth in the Mexican market and higher shipments to Hong Kong will be behind the increase. Exports to Korea are expected to remain depressed due to its financial problems.

Egg production is expected to continue increasing in 1999. Lower feed costs are expected to offset lower wholesale egg prices, maintaining attractive net returns for producers that began in 1995. Large increases in chicks hatched for table-egg production signal a continuation of larger flock sizes for next year. Egg exports are forecast to reach 243 million dozen in 1999, up 3 percent from 1998's forecast. Higher projected shipments to Canada and rebounding exports to Hong Kong are expected to provide most of the increase.

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Briefs

Specialty Crops

Dry Bean Plantings Up for 1998, But Little Change in Potato Acreage

When planting this year's dry bean and potato crops, producers have had to assess both the current market situation and the possibility of unusual weather continuing as the result of El Niño. USDA's *Prospective Plantings* report indicates U.S. dry bean growers intend to plant 1.94 million acres in 1998. This would be 5 percent more than a year ago and 1 percent more than the average for the 1990's. Improved prospects for exports to Mexico, the United Kingdom, and Iraq in the coming year are likely the driving force in increasing dry bean planted acreage this spring.

Most of the indicated gain in dry bean acreage will be in North Dakota (up 17 percent to a record high) and Minnesota (up 18 percent). North Dakota farmers grow primarily pinto and navy beans, while Minnesota growers plant kidneys, navies, and pintos. Farmers in Nebraska and Utah are also expected to plant more dry beans (up 5 and 3 percent). Pinto beans are grown in both these States, and Nebraska is also the principal producer of Great Northern beans, which are expected to see strong export growth to Iraq this year. A recent United Nations resolution will permit Iraq to sell more oil to earn revenue for food purchases in 1998.

Increased dry bean acreage is anticipated despite a 25-percent decrease in average grower prices for the first 7 months of the 1997/98 marketing year (September-March) compared with the same period a year ago. However, grower prices have strengthened 30 percent from their harvest lows last fall. Most of the gain in prices came when Mexico, where bean production fell short last year, auctioned import licenses for up to 100,000 tons of beans during the year (Mexico imports mainly pinto and black beans).

Reduced dry bean area is expected in California (down 11 percent), Michigan (5 percent), and Colorado (4 percent). California's large stocks of lima beans are behind the acreage reduction in that State, while heavy stocks and low prices for navy beans are encouraging Michigan growers to consider alternative crops like soybeans.

The current overall market situation indicates little change in potato acreage from last fall's 1.2 million planted acres. Planted acreage may increase slightly in some high-yielding areas in western States, but will likely decrease in Maine and the Red River Valley of North Dakota and Minnesota. Increased plantings of dry beans, sugar beets, and soybeans—substitute crops in several important potato growing States—also seem to signal little increase in fall potato acreage.

Prices for the 1997 crop (marketed through August 1998) have rebounded significantly following a year of the lowest prices since 1987. Record production in 1996 caused grower prices to fall to \$4.93 per cwt for the 1996/97 marketing year. Reduced production last fall has since helped to raise grower prices (September to February) for all potatoes 19 percent above year-earlier levels. Prices for fresh potatoes, up a dramatic 53 percent from a year ago, account for most of the increase. Prices for processing potatoes, up only 1 percent from the same period a year ago, are limited by contracts

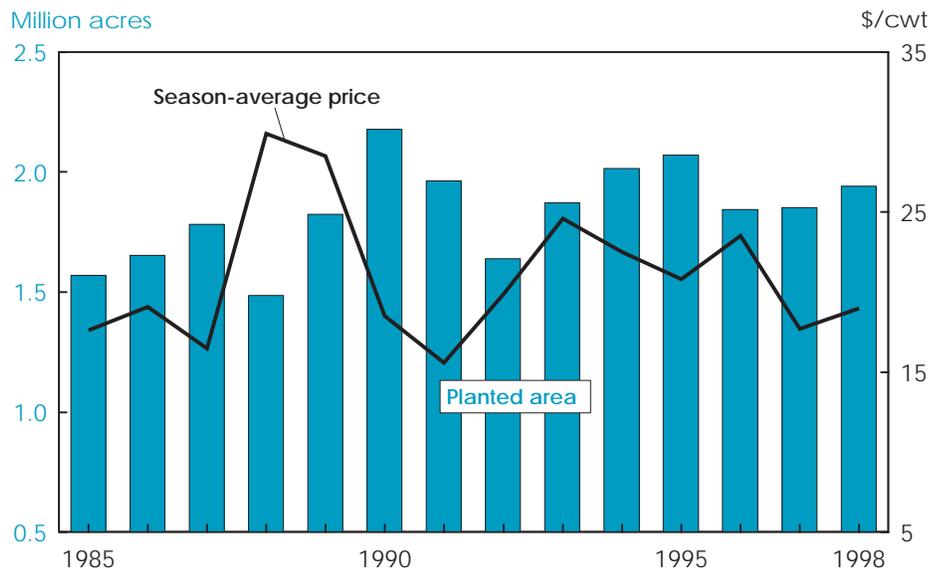
with processors made prior to last fall's growing season.

Retail prices have not reflected the significant increase in grower prices for fresh potatoes. Average retail prices for fresh potatoes from September through February were up only 6 percent.

Although reduced production last fall boosted grower prices, inventories of both fresh potatoes and frozen potato products (mostly french fries) remain high. Fresh stocks this spring, although below last year's record levels, are 5 percent above the average of the last 5 years. Additionally, higher prices this season have contributed to lower disappearance—down 2 percent through April from last year's record. Processor use through April was down 7 percent from last year's record, although only 1 percent below the level of 2 years ago.

The recent increase in processing use has helped contribute to record-large stocks of frozen potato products. Much of the recent inventory buildup has occurred in the Pacific States (California, Washington, Oregon), especially Washington and Oregon. With inventories at such high levels and a forecast for lower domestic consumption of fries in 1997/98, exports are likely to become increasingly important to fry producers in the Pacific States this year.

Dry Bean Acreage To Increase As Prices Turn Up



1998 planted area based on USDA's *Prospective Plantings* report. 1998 prices projected.
Economic Research Service, USDA

Although french fries are still the predominant potato export, the upward trend in fry exports has slowed somewhat in the past 2 years. French fry export volume increased just 3 percent from 1995 to 1996, recovering its pace in 1997 with a 13-percent increase. This is still a marked decline from the 27-percent average annual growth of the previous 4 years and the 51-percent average during 1985-95. North American markets continued strong in 1997, with exports up 48 percent from 1996, but growth in East and Southeast Asian countries (including Japan) slowed to 13 percent from the 688 million pounds exported in 1996. East and Southeast Asian countries still account for about 85 percent of U.S. french fry export volume.

Competition in export markets will likely remain rigorous through much of 1998 for potatoes and potato products, with record production in Canada and a return to normal production in Europe (both large exporters of french fries) in the fall of 1997. Tightness in export markets in East and Southeast Asia is also likely to continue due to economic crises in the region. For the 6-month period ending in February 1998—the first half of the new marketing year—U.S. french fry export volume to East and Southeast Asia was up just 3 percent from a year earlier, and export value was down. Total U.S. french fry export volume to all markets was up 5 percent during the period, while value was up close to 2 percent.

Based on overall market conditions and estimates of current-season prices, acreage of planted potatoes for 1998 (all seasons) is projected to be about unchanged from last year. Given recent trend yields and average acreage abandonment, total production for 1998 (all seasons) would be about 460 million cwt—virtually unchanged from last year. However, given the disappointing winter and spring crops due to the El Niño weather pattern, growers may plant more acreage for fall harvest as a precaution. USDA's first official estimate of planted acreage for fall potatoes, to be released in July, should provide a clearer indication of production, prices, and trade potential in the coming year.

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Prices Could Rise for Some Stone Fruits This Summer

Heavy rains in California in February and hailstorms in late March and early April have affected the State's 1998 production of stone fruits, especially plums and nectarines. Because California is a major production region for peaches, plums, and nectarines, prices for these stone fruits are likely to be higher this summer than a year ago. California produced, on average, 71 percent of U.S. peach output and 89 percent of the Nation's plums during 1995 through 1997, according to USDA's *Noncitrus Fruit and Nut 1997 Preliminary Summary*. The 1992 Census of Agriculture indicates that California growers produce about 93 percent of U.S. nectarines.

Preliminary estimates from the California Tree Fruit Agreement (CTFA)—a grower-funded organization that promotes fresh-market stone fruits—put California's 1998 plum shipments about 30 percent below last year, nectarine shipments about 9 percent lower, and peaches about 3 percent lower. Last year, USDA reported California production of plums, nectarines, and peaches at 486 million, 528 million, and 1.9 billion pounds. Last year's nectarine crop was a record; output of plums was the largest since 1994, and peach production was the largest since 1980.

Lower production of stone fruit is expected to combine with other factors to drive prices higher this season. California's relatively cool spring weather—about 10 degrees below normal—is delaying fruit development about 7-10 days for plums and 12-14 days for nectarines and peaches. The CTFA anticipated California's plum harvest to begin in mid-May, and the first peaches and nectarines could be ready for picking around May 27.

In South Carolina and Georgia, a 3-day freeze in the second week of March brought significant bloom damage to early peach varieties in these key producing

States. The likelihood of smaller peach shipments from the Southeast this summer, coupled with delay in all stone fruit development in California, will help push up prices, notably in May and June, the early part of this year's stone fruit season.

The spring hailstorms contributed to the projected drop in California's plum output this year, damaging about 15 percent of the crop. In addition, the peak bloom period for many California plum orchards occurred in late February, and the cool, rainy weather at that time hampered pollination and resulted in a light fruit set.

Despite the heavy rains in February, California peaches and nectarines escaped significant damage. Peak bloom for most peach and nectarine orchards occurred in early March—later than for plums—and the crops benefited from 3 consecutive days of dry weather. Because peaches and nectarines, unlike plums, are self-pollinating (bees are not necessary), the wet, cool weather on some days during the peak bloom period did not disrupt the pollination process, and the blooms came in heavy.

The nectarine crop was affected by the spring hailstorms, though peaches suffered little damage because the fruit's fuzzy skin affords protection. Another factor in the production outlook is that both nectarines and peaches have had two consecutive bumper crop years. Given the alternate bearing nature of these fruits, this could signal lower output this year.
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The next issue of *Agricultural Outlook* will be published in August.

Briefs

Taking Measure of the Dollar's Value: New Exchange Rate Indexes

How best to measure the value of the dollar is a constant question in international economics. The correct answer is that no single measure fits all situations, and selecting a measure often depends on how it will be used.

Some measures are straightforward. Bilateral rates measure the value of the dollar against another currency. These are helpful in understanding what affects exports to particular markets. For example, analyzing changes in the yen-dollar exchange rate helps explain changes in beef exports to Japan. If the dollar's value rises against the yen, the price of U.S. beef to Japanese consumers would increase (assuming pass through by marketers) and imports from the U.S. would likely decline.

The "value" of the dollar becomes more complex when considering overall U.S. agricultural exports or even a single commodity because there are few instances in which a commodity is exported to a single country. For this, the analyst needs a measure of value that accounts for how the dollar is performing against the currencies of many countries.

In economics, such a measure is referred to as an effective exchange rate index. This measure of value is constructed by taking weighted averages of several bilateral exchange rates and combining them into a single index. The countries and the weighting scheme would depend on the market (commodity) being examined.

Agriculture-Based Exchange Rates

Since 1988, the Economic Research Service (ERS) has published measures of the dollar's real value through a set of indexes focused on world agricultural markets. The original set covered agricultural products in total, as well as wheat, corn, soybeans, and cotton. These exchange rate indexes covered both customer and competitor currency values. ERS recently added more categories, including high-value, consumer-oriented products (one of the fastest growing U.S. exports), vegetables, red meats, fruits and fruit juices, and poultry. The 20 indexes are available for months beginning in January 1970 (the original set of indexes began in 1976).

A fixed-weight scheme is used, with the weights calculated as 5-year averages (1990-94). For customer indexes, the weights are the shares of U.S. exports during the 1990-94 period for a particular commodity. For the competitor indexes, weights are country shares during the 1990-94 period of world exports (excluding U.S. exports) for a particular commodity.

The actual construction of an exchange rate index is simple. First, real bilateral rates are calculated by multiplying the U.S. dollar exchange rate by the ratio of consumer price indexes in the U.S. and the foreign country. This real rate is then divided by its average 1990 exchange rate to form an index. Next, each country's real exchange rate (now in index form) is multiplied by its share of trade in the particular commodity category. The final step is to sum all of the weighted rates to get that commodity's indexed exchange rate.

New Calculations Reflect Changes in World Market

Values for some of the indexes in the original set have changed in the new ERS calculations. This is due in part to changes in weights, and in part to a change in the mix of countries. A few small developing countries have been dropped since they fell below 1 percent of trade in the particular commodity category. This affected mainly the cotton indexes for customers and competitors. More significantly, Russia was added to customer indexes for wheat and for total agriculture.

The new *customer* index for total agricultural products has the dollar's value averaging about 2 percent above the original index for 1992-95, and about 0.8 percent higher the following 2 years. The wheat index has a more significant change, averaging 5 percent higher over the 1992-95 period. Finally, the value of the dollar averages about 3 percent lower over the 1976-85 period in the cotton index.

Two *competitor* indexes were altered. The cotton index shows the dollar's average value lower by almost 8 percent in 1976-89. The new competitor soybean index values the dollar somewhat higher overall, and with a significantly higher value—20 percent—beginning in 1994. This change results from Brazil rebasing its consumer price index.

What Do the Indexes Tell Us?

Both the customer and competitor indexes are constructed so that an upward movement indicates a rise in the dollar's value and a subsequent loss of price competitiveness for U.S. exports. The extent of the loss depends on how much of the rise an exporter is willing to pass on to customers; a U.S. exporter could cut prices to ameliorate some of the adverse competitive effects of the dollar movement.

Interestingly, a loss in U.S. competitiveness can occur even without a rise in the dollar vis-a-vis *customer* currencies. This is because agricultural exports from U.S. *competitors* are generally priced in U.S. dollars. For example, U.S. price competitiveness in the world poultry market apparently improved when the customer-based dollar declined 4.5 percent in 1996/97. But because the dollar also appreciated 13 percent against *competitor* currencies during the same period, competitors could cut their dollar export prices by up to 13 percent and not impact their home currency-denominated profits. If they cut dollar prices 10 percent, U.S. relative price competitiveness declines 10 percent. At the same time, home currency-denominated profits would still rise about 3 percent.

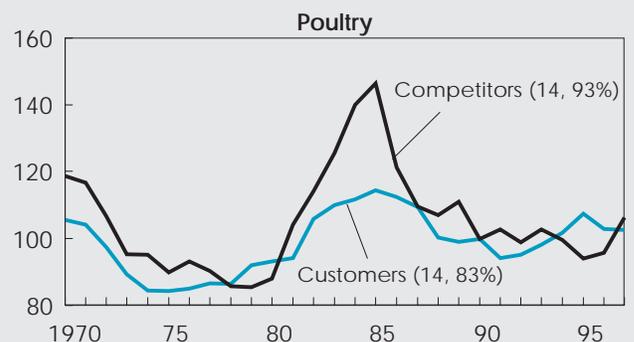
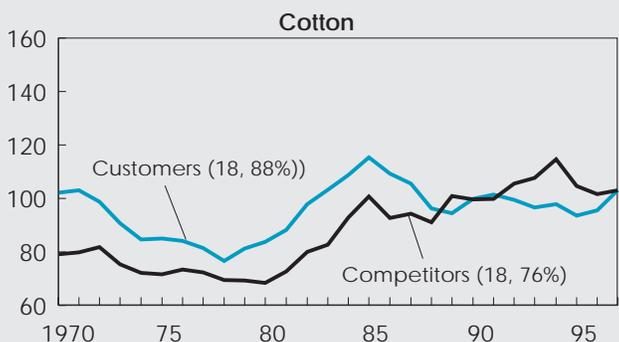
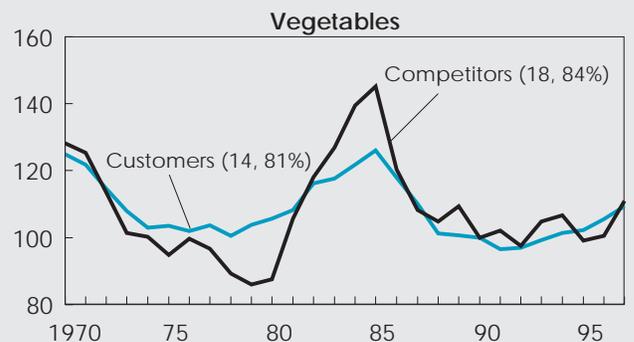
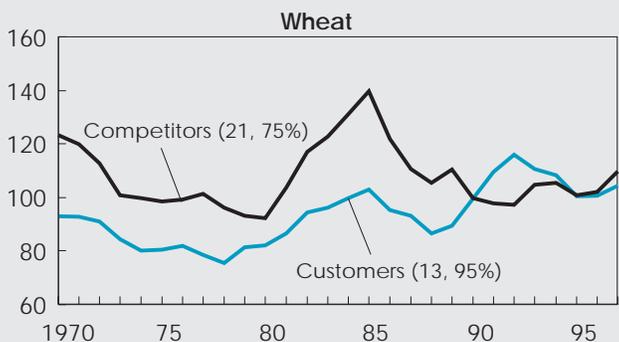
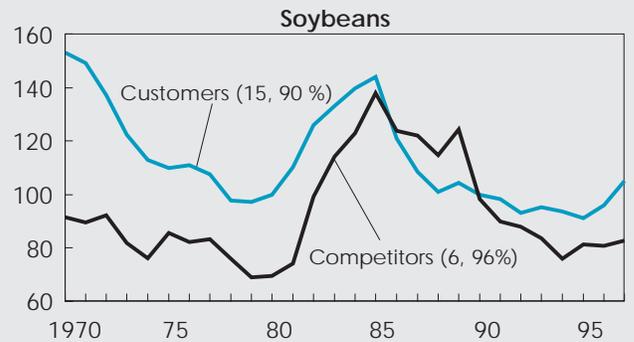
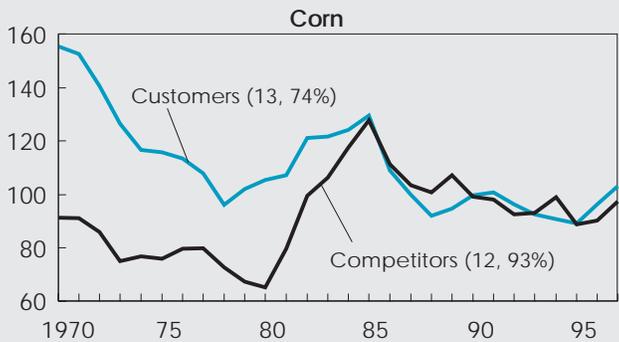
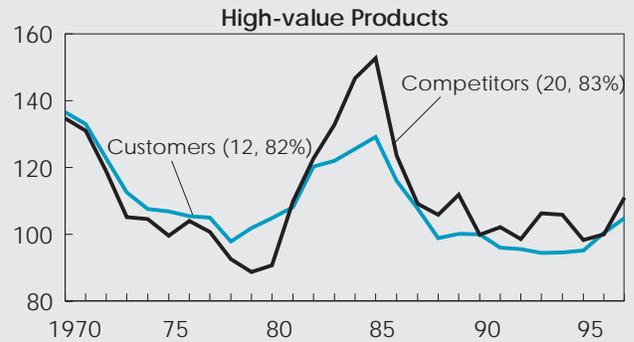
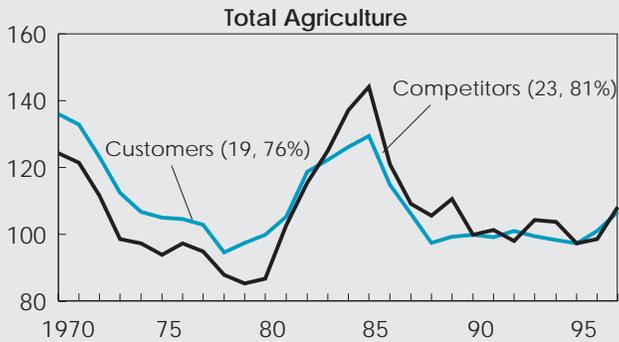
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Internet users can find the complete data set and country list of exchange rate indexes at <http://mann77.mannlib.cornell.edu/data-sets/international>.

Real Agricultural Exchange Rates Vary By Commodity

Index of foreign currencies/US\$ (1990=100)



Data in parentheses indicate the number of countries in the index and either the share of U.S. exports (for customers) or the share of world market, excluding the U.S. (for competitors) covered by the index.

Economic Research Service, USDA

Commodity Spotlight



U.S. Red Meat & Poultry Markets In a Global Setting

As the U.S. has become a larger player in world meat export markets in the 1990's, events in other major exporting and importing countries have had a greater effect on domestic prices and production. Not only are domestic producers affected by world prices and quantities of meats traded, but they are also affected by the changing composition of the trade, i.e. the products being traded. As a result, the U.S. market outlook is now determined in larger part by the global market than was the case before the export surge of the 1990's.

After several years of rapid increases, growth in U.S. red meat and poultry trade is expected to slow in 1998. Red meat and poultry exports are expected to grow about 2 percent in 1998, compared with the double-digit rates that have prevailed until now in the 1990's. About the same rate of increase in meat exports is forecast for 1999 as for 1998. Production is expected to increase about 3 percent in 1998 and remain about the same in 1999. After generally declining in the 1990's, U.S. meat imports rose 11 percent in 1997 and are expected to rise about 10 percent in 1998 then taper off to about 3-percent growth in 1999.

During the last decade, global production (defined as output in the major producing

and trading countries as reported by USDA's Foreign Agricultural Service) of meat—beef, pork, and poultry—has increased about 3 percent annually. These gains have been led by poultry and supported by pork. Poultry meat production has expanded more than 5 percent each year on average, offsetting little or no growth in beef production since 1988. Global poultry meat production surpassed beef in 1995, and the gap has continued to widen as beef production has remained stagnant. Pork is the most widely produced meat, with China accounting for over half of the world total.

China's output has determined trends in global meat production over the last decade. China's meat production has jumped 10 percent annually since 1988. When China's production is excluded, global production of meat has risen only about one-half percent each year. Beef and pork production have actually declined, and only poultry meat shows an increase—nearly 4 percent—each year.

Poultry meat is a cheaper source of meat protein than beef, and consumption growth has been especially strong in China, Russia, and Mexico in recent years. Even in a developed market such as the U.S., consumers are buying more poultry. Lower prices relative to red

meats, the convenience of processed poultry products, and promotions of poultry products in the fast-food industry have all contributed to this trend.

As a result of the strong and growing world demand for poultry meat, global exports have advanced at a double-digit pace in the 1990's. Pork exports have increased at about 3 percent annually, while beef exports have actually declined. The U.S. supplies about 53 percent of global poultry imports.

In 1998, global production and consumption of beef, pork, and poultry meat are expected to expand about 3 percent to nearly 188 million tons. Production growth is slightly higher than in 1997. Exports from the leading meat exporting countries, with the exception of the European Union (EU), are expected to decline in 1998. U.S. red meat exports are not expected to expand in 1998, the first time since 1985, due to a 2-percent reduction in beef foreign sales.

In 1998, the U.S. meat and poultry sectors are confronted with three major hurdles: the lingering effects of food safety concerns, the Asian financial situation, and the increasingly competitive environment for meat trade.

In 1996, the bovine spongiform encephalopathy (BSE) situation in the EU contributed to a slowdown in the growth of global meat consumption and trade. The lingering effects of food safety concerns began to dissipate in 1997 and the outlook for both beef consumption and trade began to improve in the latter part of 1997. However, during the last quarter of 1997, Asian beef imports began to slow as reports of *E. coli* and listeria contamination in other Asian markets raised concerns about food safety in the beef supply. In 1998, beef consumption in Asia is expected to fall as consumers return to eating more pork.

The avian influenza outbreak in Hong Kong and subsequent slaughter of Hong Kong's poultry flock added more uncertainty in one of the largest poultry trade markets going into 1998. An outbreak of foot-and-mouth disease (FMD) in Taiwan in 1997 shut that country, one of the largest pork exporters, out of the global export market. Classical swine fever (CSF) has disrupted EU pork markets.

The Asian financial crisis hit in the last half of 1997, threatening to limit meat imports and reduce consumption growth in some major Asian markets for the U.S. The U.S. sends 40 percent by volume and 53 percent by value of its total meat exports to Asian Pacific Rim markets. In 1997, U.S. red meat—beef and pork—exports to Asia were valued at \$2.5 billion and poultry meat exports were \$680 million.

Partly as a result of the Asian financial crisis, the competition in global meat markets is probably as great or greater than ever. The bulk of the global meat trade is concentrated in a few major markets, and as consumption growth slows or shrinks in key markets, competition will intensify. The devaluations of the Thai and Korean currencies substantially boosted their competitive position in the export market for poultry and pork. The strengthening U.S. dollar against the Australian dollar is also likely to provide opportunities for expansion of the Australian share of the Asian beef market.

U.S. Exports Mirror Asian Market Demand

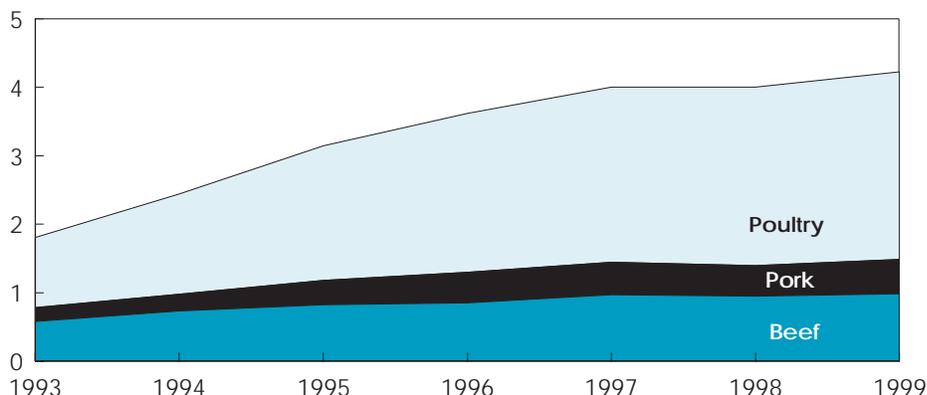
Reduced demand in Asian markets, especially Japan and Korea, will lead to significantly reduced U.S. meat exports this year. Japan's sluggish economy is likely to temper any advance in meat consumption. Pork consumption in Japan is expected to rise marginally, having declined in 1997 after food safety concerns and the FMD outbreak in Taiwan that cut off imports from Japan's leading pork supplier. Beef consumption is expected to remain the same as last year and poultry meat consumption to decline slightly.

The U.S. is also expected to face increased competition in reaching the Japanese market. Japanese trade statistics for the first quarter of 1998 indicate that Korea has nearly tripled its pork exports to Japan early in 1998. The sharp devaluation of the Korean won has substantially improved the competitive position of Korean pork. U.S. pork exports also rose early in the year, unlike last year when Japanese imports were slowed by the threat of triggering import restrictions.

Japanese beef consumption and imports are not expected to exceed 1997 levels. While Japanese beef imports picked up at

Poultry Leads U.S. Meat Exports

Million tons



1998 and 1999 forecasts.

Source: Foreign Agricultural Service, USDA.
Economic Research Service, USDA

the end of 1997 and into 1998, first-quarter 1998 imports still have not returned to the level reached in 1996 prior to food safety concerns. Early indications are that Australia has increased its share of Japanese beef imports.

Korea's beef consumption had been steadily rising until 1998, when the economic crisis began cutting into consumption. Korean consumers are expected to buy less meat and substitute cheaper cuts when they do buy. As a result, beef consumption is expected to drop in 1998. Korea is also one of the world's leading beef importers. As part of its WTO commitments, Korea agreed to import 187,000 tons of beef in 1998. However, trade statistics for the first 2 months of 1998 indicate that Korean beef imports were about 80 percent below year-ago levels. In response to the Korean credit squeeze, the U.S. has provided nearly \$147 million in GSM-102 credit guarantees to facilitate beef shipments into Korea.

China, it is estimated, consumes nearly all of the beef and pork it produces, although per capita consumption of beef is low. Beef imports and exports are negligible, and pork exports have been declining. But China is the world's second-largest poultry meat importer. For the past decade, Chinese poultry meat consumption grew at a double-digit pace. Growth is expected to be slower in 1998.

China has expanded its domestic poultry meat production, partly reflecting expectations of increased exports. However, the

anticipated increases did not materialize; devaluation of the baht improved Thailand's competitive position in the Japanese import market, preempting expected Japanese demand for poultry from China. The larger supply of Chinese poultry has reduced domestic prices and limited the competitiveness of imported poultry meat. Chinese poultry meat imports in 1998 are projected to drop for the first time in 10 years.

Because Hong Kong is a major transshipment point for poultry meat to China, Hong Kong has become a leading poultry meat importer. Imports are expected to decline for the first time since 1981 as ample supplies of poultry meat in China reduce demand for re-exports.

Concerns about BSE and the discovery of *E. coli* in beef from a local slaughterhouse in March 1997 slowed Hong Kong beef consumption and imports. As a result, pork consumption rose nearly 9 percent, and is expected to increase again in 1998. After the avian influenza outbreak in December 1997, when Hong Kong destroyed its chicken inventory and banned live chicken imports from China, red meat consumption reportedly jumped 30-40 percent, as consumers substituted beef or pork for chicken. The rise in consumption was probably bigger for pork given the local preference.

Taiwan fell from its position as the world's third leading pork exporter when exports plummeted after the March 1997 outbreak of FMD. Pork consumption also

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plunged, while beef and poultry meat consumption rose. Taiwan's pork consumption is expected to recover in 1998 as consumer confidence returns for domestic pork, encouraged partly by lower prices. However, Taiwan's pork in any significant quantity will likely remain out of the international market until at least 2003.

Russian & Mexican Markets Sustain U.S. Exports in 1998

Russia imported 2.3 million tons of meat in 1997, compared with 2.2 million tons for Japan, usually the world's leading importer of meat. In 1998, Russia is projected to increase its imports to about 2.5 million tons. A majority of Russian meat imports will be poultry meat—1.3 million tons—followed by about 750,000 tons of beef and nearly 500,000 tons of pork.

Since the collapse of the Soviet Union, meat production and consumption have steadily declined as the new governments have withdrawn financial support, and there have been localized shortages of the grains necessary to maintain previously high levels of meat production (see **Special Article**). Poultry production has dropped more than beef and pork and is expected to drop another 8 percent in 1998.

While beef and pork consumption continue to decline, poultry meat imports have allowed Russian consumption of meat to decline at a much slower rate than its falling meat production. The U.S. dominated the Russian poultry meat import market with its ample supplies of low-cost leg quarters, and is expected to continue to dominate in 1998, even as the EU aggressively targets the Russian market.

Mexico continues to be a critical expanding market for meat. Mexico's meat consumption is expected to grow faster than its production in 1998, resulting in a 15-percent increase in meat imports.

Beef consumption in Mexico grew 4 percent in 1997, reflecting strong growth in incomes as the economy continued to expand at a healthy pace. Domestic beef production in Mexico is not sufficient to meet consumer demand, and imports have continued to increase from the low of 1995 when Mexico's economy was suffering from the peso devaluation. Mexico's beef imports surged 83 percent in 1997 to 150,000 tons, and they are expected to

increase 30 percent in 1998. The U.S. supplies the vast majority of beef imports to Mexico.

Mexico's pork consumption has increased as the economy has grown. A 5-percent increase in pork consumption, to 960,000 tons, was seen in 1997 as pork supplies increased and the economy continued to strengthen. A further increase of 2 percent, to 976,000 tons, is forecast in 1998.

Pork imports increased 28 percent to 41,000 tons in 1997, much of it imported from the U.S. by Mexican sausage producers. The U.S. average share of the Mexican pork market has been 97 percent, and little or no change is expected in 1998. Total Mexican imports are forecast to increase to 47,000 tons in 1998, encouraged by lower U.S. pork prices.

EU Meat Production Plagued by Disease Problems

The EU meat market is still affected by disease problems in 1998—bovine spongiform encephalopathy (BSE) in the cattle sector and classical swine fever (CSF) in the hog sector. The EU is the world's third largest meat producer and consumer, behind China and the U.S., and the world's largest pork exporter.

In 1997, EU pork production was originally expected to expand as beef demand was suppressed by the BSE outbreak in 1996. However, a severe outbreak of CSF in the Netherlands curtailed pork expansion. Through live hog trade from the Netherlands, CSF outbreaks occurred in Spain, Germany, and Belgium. As a result of these outbreaks, the Dutch government has moved to reduce the swine herd, since heavy concentration of animals is believed to propagate CSF.

The EU beef market continues its slow recovery from the BSE crisis. Despite marginal growth expected in 1998, consumption of 7.1 million tons remains lower than the pre-BSE crisis level of 7.4 million tons in 1995. Total EU beef production is expected to decline 2 percent in 1998 to 7.6 million tons, reflecting lower cattle inventories.

EU beef trade remains weakened from the crisis. Although exports are gradually improving, they are expected to remain 9 percent below the 1995 level, at 2.4 mil-

lion tons in 1998. Due to a growing number of export license requests, the EU Commission decided to cut export refunds for fresh and frozen boneless beef by 50 percent in February, the sixth time since August 1997 that refunds have been reduced. In 1998, total imports are forecast to be 13 percent lower, at 1.8 million tons, than the pre-BSE crisis level.

Another serious imbalance has developed in the EU beef market as a result of the BSE crisis, and intervention buying by the EU Commission is again necessary to relieve the market of large beef stocks, which reached 900,000 tons on January 1, 1998. The artificial incentives and resulting market distortions of the EU beef regime—made worse by the BSE crisis—have led to new proposals for a reform of the Common Agricultural Policy as it relates to the beef sector.

Canada Expands Meat Output

Canada is expected to further expand meat production in 1998, led by gains in pork and poultry meat production. Cattle herd liquidation in 1996-97, which boosted beef production, is over, and cattle inventories are expected to stabilize at the 1997 level. Canada's beef imports are not expected to increase in 1998, although the U.S. share could decline again in favor of Australia. Expansion and aggressive marketing by western Canadian packers in the eastern Canadian markets are expected to compete with U.S. exports into eastern Canada. Canadian beef exports are unlikely to expand in 1998 because of the financial situation in Asia.

The U.S. has historically been the largest market for Canadian pork, but record U.S. pork supplies and lower U.S. pork prices will most likely keep more Canadian pork at home in 1998. Canada was able to expand its share of the Japanese pork market in 1997 as Taiwan's absence opened up additional opportunities. With new, modern processing facilities coming on line in the near future, Canada's exports are expected to increase further in 1998, particularly if the Canadian dollar remains weak vis-a-vis the yen and other competitor currencies.

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Food Safety



Gary Lucier

Food Safety Technology: A Potential Role for Ozone?

Ozone, a form of oxygen commonly associated either with its ability to guard against the sun's harmful ultraviolet radiation or with smog, recently gained approval for use in the U.S. food processing industry to help rid food of dangerous pathogens (bacteria, parasites, fungi, and viruses). In July 1997, ozone was deemed "generally recognized as safe" (GRAS) as a disinfectant for foods by an independent panel of experts sponsored by the Electric Power Research Institute.

For any substance commonly used in the U.S. prior to January 1, 1958, the Food and Drug Administration (FDA) allows its use in other products if an independent panel of experts deems the substance and its use as GRAS. The GRAS determination in treating food products was an expansion of uses already approved for ozone.

Ozone has long been recognized as a disinfectant for water, first used in a U.S. water drinking plant in 1940. Today, nearly 200 municipal water treatment plants, from Orlando to Los Angeles, employ ozone to help cleanse their drinking water. Most bottled water is treated with ozone as well, a practice stemming from a 1982 FDA affirmation of ozone as GRAS in this product.

Prior to July 1997, however, the only approved use of ozone in food products was for the storage of meat in gaseous ozone, granted by USDA in 1957. Now, processors of fresh fruit, vegetables, poultry, and red meat are examining ozone as one of several new technologies to ensure food safety.

Potential Benefits

The strength of the case for using ozone may rest with its versatility and environmental benefits over some existing food sanitizing methods. Ozonated water can be used on food products as a disinfectant wash or spray. When dispersed into water, ozone can kill bacteria—like *E. coli*—faster than traditionally used disinfectants, such as chlorine.

Ozone also kills viruses, parasites, and fungi. The U.S. Environmental Protection Agency, in conjunction with the Safe Drinking Water Act of 1991, confirmed that ozone was effective in ridding water of hazardous pathogens, including chlorine-resistant *Cryptosporidium*.

Coupling two processes—washing food with ozonated water and the subsequent ozonation of the recaptured water—reduces the amount of water needed in the

food washing system (which lowers costs, particularly for high water users such as fruit and vegetable packers and processors). In addition, any wastewater discharged by an ozonation process used as a substitute for conventional chlorine-based food washing and spraying systems, is free of chlorine residuals, a growing environmental concern in groundwater pollution.

Food products treated with ozone are also free of disinfectant residues. Because it is an unstable gas, ozone decomposes in about 20 minutes into simple oxygen, leaving no trace of the ozone disinfectant on the food.

Ozone also acts as a disinfectant in its gaseous state. It can be applied to sanitize food storage rooms and packaging materials, which may help to control insects during storage of foods and prevent spoilage of produce during shipping. Gaseous ozone is also listed as an alternative disinfectant for water-sensitive produce, such as strawberries and raspberries, in the *Guide to Minimizing Microbial Food Safety Hazards for Fresh Fruits and Vegetables* (a document forthcoming from FDA and USDA).

The Electric Power Research Institute is examining the use of ozone as a fumigant in food storage beyond the already approved use for meat. Methyl bromide has commonly been used as a fumigant to

Ozone is only one of many food sanitizing ingredients and processes being used, examined, or proposed to improve food safety. Chlorine is the most commonly used chemical to kill pathogens on food, but chlorine dioxide, hypochlorite, and trisodium phosphate also have been studied for use in washwater to disinfect food products. Irradiation of meat, through low-dose radiation or electron beams, was approved by the Food and Drug Administration in December 1997. Steam pasteurization, flash pasteurization, and ultraviolet radiation are additional methods that can sanitize food. Each method has its advantages and disadvantages, and research continues on which methods or combinations of sanitizing processes work best for specific foods.

Food Safety

prevent insect infestation of commodities such as grapes, raisins, cherries, nuts, and grains, but its use is being phased out under the Clean Air Act (Amendments of 1990). The phaseout prohibits U.S. production and importation of methyl bromide starting January 1, 2001. Interest-ingly, the phaseout is intended to halt the depleting effect of methyl bromide on the Earth's protective ozone layer.

Interest in Ozone Systems Builds . . .

The food processing industry has faced mounting concerns in recent years about its ability to provide a consistently safe food supply. Food passes through many hands—from growing, picking, boxing, shipping, to final processing—prior to reaching the consumer. Most past efforts to avoid contamination of food centered on preventing exposure to sewage or animal manure early in the production process.

Because of the incidence of food contamination along the entire chain of production, and the recognition that many pathogens—some have recently emerged—are found in even healthy animals, the industry has realized that some form of disinfection, perhaps at multiple points, is necessary. Each year in the U.S., an estimated 6.5-33 million illnesses and up to 9,000 deaths are caused by food-borne diseases (*AO* July 1996).

Centuries-old methods of treating food, such as drying, smoking, and use of simple substances like salt, no longer adequately prevent spoilage in today's food marketing system. These methods to prevent contamination can also alter a food's taste.

Food processors have turned to other technologies to both decontaminate and preserve products without substantially changing the appearance, taste, texture, or nutrient content of the food. These methods include steam pasteurization, used principally in meat processing where beef carcasses are exposed to steam for short periods of time; flash pasteurization, a heating process to kill bacteria in juice; and irradiation, which uses low-dose radiation to treat meats, fruits, vegetables, and spices.

As a nonthermal method of disinfecting food, ozonation reportedly alters taste lit-

tle, unlike some heat-based steam and flash pasteurization systems that cook the product. Further, in some foods, ozone proponents indicate flavor is enhanced by ozone's ability to neutralize chemicals, pesticides, and bad tastes from gases produced by ripening or decay.

In 1995, the National Live Stock and Meat Board and various universities conducted research that showed an ozone wash reduced bacterial contamination on beef carcasses to a level equal to conventional carcass trimming and washing methods. (Under specific conditions, hot-water washing, an alternative process, resulted in consistently lower bacterial populations on beef carcasses.) In mid-May 1998, research was completed by California Polytechnic State University which revealed ozone reduced pathogens on surfaces of lettuce, meat, and poultry.

Now that ozone has received a "generally recognized as safe" designation, a few firms have adopted or begun testing ozone-based systems. Recent televised news reports highlighted a Florida citrus grower washing oranges and grapefruit in ozonated water. The Vermont Department of Agriculture is examining the potential of ozone to wash apples used in the apple cider industry.

Industrial gas-producing companies are developing mechanical systems for processing poultry that filter out biological waste material in poultry chiller water and then add ozone to disinfect the washwater. In January 1998, two New York-based companies, one an all-natural chicken processor, announced pilot tests of an ozone system in their processing plants. (Before a firm adopts an ozone system, a pilot test is required by the USDA's Food Safety and Inspection Service—FSIS—conducted under FSIS protocols.) And in April 1998, an agricultural corporation in California contracted to install an ozone system that is intended to replace a combined chlorine wash and steam pasteurization process.

. . . But Adoption May Be Slow

Having achieved GRAS status, will ozone be widely adopted in the food processing sector? As with any new technology, the lack of commercial experience in disin-

The designation of ozone by an independent panel (i.e., nongovernmental) as "generally recognized as safe (GRAS)" in food processing allows for its use unless proven unsafe by the FDA, the principal government agency that regulates the safety of food ingredients. However, any new uses of a substance, such as the direct application of ozone as a disinfectant on food products, would benefit from formal FDA approval in gaining commercial acceptance. Presently, the FDA has formally approved ozone to treat only one "food" item, bottled water.

A requirement for GRAS status is that a panel of experts undertake a detailed study of the ingredient and present its findings to the FDA. Panel members are not chosen by the FDA, which does not have a seat on the panel. In the case of ozone, experts from food science, food technology, nutrition, toxicology, and ozone chemistry served on the panel.

fecting food with ozone may hinder its implementation. Although the potential benefits of ozone are being identified, complete industry specifications (e.g., treatment lengths, concentration levels) have not been developed for the application of ozone to the array of foods that may be treated with this technology.

Associated with the lack of commercial specifications is the absence of government guidelines and standards on ozone use in food processing. As most food processing plants are government-inspected, processors are reluctant to use ingredients that are not explicitly government-approved. Further, as ozone is a toxic gas and respiratory irritant, issues of accidental discharge and worker safety are a concern.

And how much will an ozone system cost? Ozone must be produced onsite because of its short life before converting back to oxygen; thus, ozone generators and diffusers are necessary at the food processing plant. According to one manufacturer, ozone generators, which produce the gas by passing dry air or pure oxygen between parallel electrodes, may cost between \$10,000 to \$100,000, depending on the size needed for the processing operation.

The amount of ozone needed to disinfect various foods also figures in the cost equation. Manufacturing ozone requires substantial electricity—about ten times more than for the production of chlorine.

Little cost analysis has been done yet, but based on initial activity in the industry, ozone technology may be economically competitive with other disinfecting processes. Upfront costs are similar for ozone and conventional washing systems, for example, but they are significantly lower than for others such as irradiation. Cost factors for chlorine-based systems, such as transportation and storage of the gas, may offset higher onsite costs for ozone gas production.

Ozonation of water supplies, bottled water, and food is a virtually unknown process to most U.S. consumers. If regulatory and commercial hindrances are resolved, consumer acceptance of ozonation of food may be a final obstacle before food processors adopt ozone technology. Consumers are often slow to accept new products or even traditional products that are manufactured with a new and unfamiliar process. Therefore, most companies are unwilling to be first in offering innovative products, which often require costly marketing efforts.

Consumer preferences may offer some insight about the acceptance of new prod-

ucts. Test market surveys by an independent marketing research firm in early 1998 indicated acceptance of ozonated foods when consumers are knowledgeable of various processing methods. Three food processing methods—existing chlorine rinses, newly approved irradiation, and ozonation—were explained to consumers, who were then asked if they would purchase products treated by these methods. Eighty percent of consumers indicated a preference for products treated with ozone when given the choice of chlorine, irradiation, or ozone processes (other disinfecting processes such as steam pasteurization and hot-water rinses were not included in the survey).

The disinfecting ability of ozone is evidenced by its generally accepted use in treating water supplies in the U.S. and Europe, where the first commercial application of ozone to cleanse drinking water was in France in 1906. However, disinfecting food with ozone is only now emerging. The development of ozone technology in the U.S. food processing industry is dependent upon its economic competitiveness with existing and emerging technologies that sanitize food, proper safeguards in its use to assure worker safety, as well as its effectiveness in enhancing food safety.

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Upcoming Reports—USDA's Economic Research Service

The following reports will be issued electronically on dates and at times (ET) indicated.

June

- 23 *U.S. Agricultural Trade Update*
(3 p.m.)
*Free Trade in the Americas**
- 30 *China**

July

- 13 *Cotton and Wool Outlook*
(4 p.m.)**
- Feed Outlook* (4 p.m.)**
- Oil Crops Outlook* (4 p.m.)**
- Rice Outlook* (4 p.m.)**
- Wheat Outlook* (4 p.m.)**
- 16 *Livestock, Dairy, & Poultry*
(3 p.m.)
- 20 *Agricultural Outlook**
- 23 *U.S. Agricultural Trade Update*
(3 p.m.)
*Vegetables and Specialties Yearbook**

*Release of summary, 3 p.m.

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Farm Finance



Jack Harrison

Farm Credit Use Up For 6th Straight Year

The volume of farm business debt is expected to increase in 1998 for the sixth consecutive year. Farm credit usage has increased in recent years, buoyed by generally favorable income conditions in the farm sector. Factors at work in 1998 include expectations of quite stable interest rates coupled with overall lower net cash income for the farm sector. Total farm business debt—real estate and non-real estate loans—is forecast to reach about \$172 billion by the end of 1998, up about 3.8 percent from 1997 and the highest level since 1985.

At the end of 1997, farm business debt amounted to \$165.9 billion, up 6.2 percent from a year earlier. The 1997 increase was the largest annual percentage gain in outstanding loans since 1981 and placed the sector's debt level about \$28 billion above the previous low in 1989. In recent years, the growth in nominal farm debt has outpaced inflation. From yearend 1993 to the end of 1997, total farm debt grew 16.7 percent, compared with an increase of 9.7 percent in the GDP deflator, which reflects price changes in all goods and services transactions in the U.S. In contrast, from yearend 1989 through yearend 1993, farm debt grew 3 percent while the GDP deflator increased by 14.4 percent.

Nationwide, farm operators' expanding use of credit is not expected to place excessive demands on their ability to meet their debt obligations. Increases in total farm debt in the 1990's have been well below the double-digit expansions of the 1970's. And total farm debt at the end of 1997 was still 14.4 percent below 1984's peak.

Most agricultural lenders benefited from the continued growth in loan demand in 1997, and these lenders are in a strong financial position in 1998. However, changes in loan volume and the composition of loan portfolios vary among the four traditional classes of farm lenders—commercial banks, the Farm Credit System (FCS), USDA's Farm Service Agency (FSA), and life insurance companies.

Together, these lenders accounted for almost 77 percent of all farm loans outstanding in 1997. The remaining share of farm credit comes from individuals and from nontraditional lenders, primarily input and machinery suppliers, cooperatives, and processors. All farm lender classes saw increases in outstanding loan volume in 1997, except for the government "farm lender of last resort"—the FSA—which accounted for only 5 percent of all farm business loans in 1997.

Activity Up for Real & Non-real Estate Loans

Agricultural lenders generally found the demand for agricultural credit strengthened more for non-real estate than real estate loans both in 1997 and for the period from yearend 1992 through 1997. Farmers are using the increased borrowing to expand operations, update capital, and purchase additional farmland—often at higher prices than a year ago. Real estate, non-real estate, and total outstanding loan volume increased 4.9, 7.6, and 6.2 percent, respectively.

Non-real estate loan volume increased \$5.68 billion in 1997, up 7.6 percent from 1996. Non-real estate loans are typically for farm inputs, equipment, and machinery. Some 58 percent of the growth in total farm loan volume in 1997 occurred in the short- to intermediate-term non-real estate loan portfolio. Outstanding non-real estate FCS loans increased by \$2.76 billion or 6.9 percent, compared with \$5.47 billion, or 8.9 percent, for commercial banks.

In 1998, non-real estate business loans outstanding are anticipated to increase about 4 percent. Farmers are expected to spend about \$185 billion for agricultural inputs and \$164.4 billion in cash expenses, the same level as 1997 for both, although USDA forecasts increases in prices of most agricultural inputs in 1998. In the first two seasons following enactment of the 1996 farm legislation, farmers planted 261 million acres annually to the eight major field crops (corn, sorghum, barley, oats, wheat, rice, upland cotton, and soybeans). These crops accounted for virtually all of the changes in principal crop acreage during the past 2 years. Total area planted to these crops is projected to decline 1.57 percent in 1998. The expansion in farm business loans following the farm act has been due largely to increases in prices of inputs such as fertilizers rather than to changes in the amount of planted acres.

Strong machinery sales help maintain the demand for short- and intermediate-term farm loans. Unit sales of farm tractors, combines, and other farm machinery were strong in 1997. Purchases of farm tractors totaled 75,608 units, up 13 percent from 1996. Combine purchases were up 7.2

percent to 9,662. Tractor sales are forecast to be strong again in 1998, although they may not reach the 1997 level. Overall demand for machinery, including combines, is anticipated to be steady.

A larger share of loan demand for these inputs is now met by “captive” finance firms owned by the machinery companies. Such nontraditional lenders are defined as institutions whose primary contact with farmers has historically been to provide goods and services other than credit.

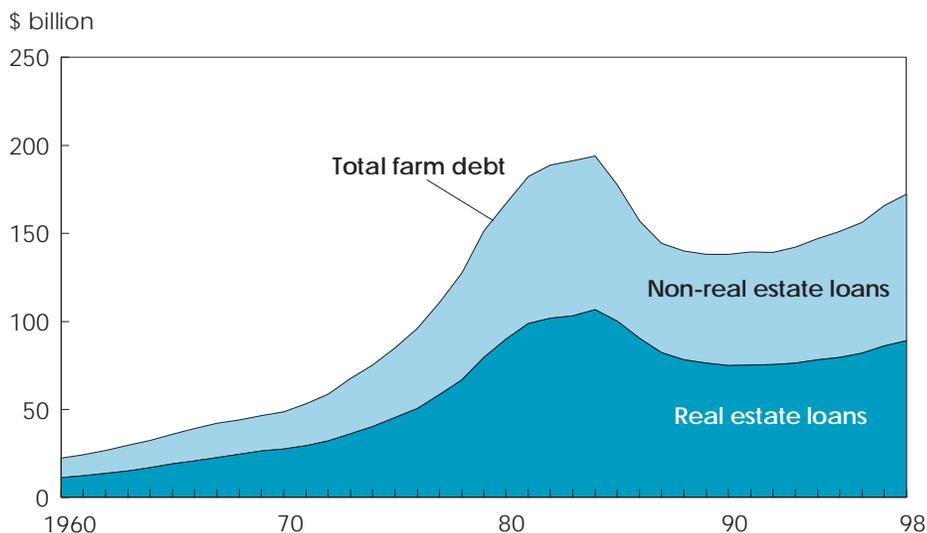
Farm real estate loan volume increased \$4.1 billion or 4.9 percent in 1997. Outstanding FCS real estate loans accounted for \$1.45 billion or 35.9 percent of the increase; commercial banks gained \$1.96 billion or 48.6 percent of the total increase. FCS reported a 5.6-percent increase in farm mortgage loans outstanding for the year ending December 31, 1997. This compares with 3.5 percent in 1996 and 0.8 percent in 1995. Among life insurance companies, total farm real estate lending activity (their entire farm loan portfolio) was up 4.8 percent during calendar 1997.

Outstanding farm real estate loans are expected to increase about 3.5 percent in 1998. Activity in the land market and higher farmland prices should continue to create stable demand for mortgage loans (real estate credit). U.S. farmland values per acre increased 6.2 percent in 1996, 5.8 percent in 1997, and are expected to advance about 5 percent in 1998, marking 12 straight years of U.S. farmland value increases.

The increase in nominal U.S. farmland values during 1993-97—35.9 percent—tripled the 11.5-percent increase in the GDP deflator. In contrast, the rate of increase in farmland values following the 1987 low lagged inflation through 1992. The 1993-97 increases represent the strongest yearly gains, both in nominal and real terms, since the recovery began in 1987.

Farmers are expected to use their available credit lines more fully in 1998 than in 1997, based on ERS projections of the maximum debt that farmers could repay out of current income. The amount of farmers’ income available for payments on loans determines the maximum debt

Farm Business Debt To Rise Again in 1998



1998 forecast.
Economic Research Service, USDA

farmers can take on, given current interest rates and loan terms.

The *debt repayment capacity use* (actual debt expressed as a percentage of maximum feasible debt) will increase for the second consecutive year to about 61 percent in 1998—although it remains close to the 1990-95 average and is well below the levels of the early to mid-1980’s. Farmers in 1997 tapped a greater share of the credit estimated to be available to them (56 percent) than in 1996 (49 percent) in order to maintain or expand their operations. The effect of favorable interest rates throughout 1997 was not sufficient to offset the combined effects of rising debt and lower net cash income. The 1996 level represented a drop in use of debt repayment capacity from the previous year despite a rise in farm business debt, as net cash income levels rose and interest rates declined.

Lenders Respond to Growth

From yearend 1992 through 1997, total farm debt grew \$26.6 billion or 19.1 percent. Commercial banks led the growth with \$15.4 billion, followed by nontraditional lenders with \$8.5 billion and the FCS with \$4 billion. Total debt expansion in 1998 is expected to be about \$6.3 billion, compared with the 1997 increase of \$9.7 billion.

Commercial banks, the largest source of farm business credit, accounted for 40.5 percent of all farm loans outstanding at yearend 1997. The total volume of outstanding farm loans by commercial banks reached \$67.2 billion in 1997, up 8.9 percent from 1996. For farm real estate lending alone, the expansion was even stronger, rising 8.4 percent and marking the 15th consecutive year of gains. Commercial banks accounted for 56 percent of the growth in total farm debt outstanding in 1997.

The recent growth in farm loan demand experienced by commercial banks is reflected in their loan-to-deposit ratios. In the year ending September 30, 1997, average loan-to-deposit ratios grew to 70.3 percent for agricultural banks, up from 59.7 percent 4 years earlier. Agricultural banks are those whose ratio of farm loans to all loans is higher than the average for all other banks.

High loan-to-deposit ratios do not necessarily constrain the origination of new loans. Commercial banks have many non-deposit sources of funds, and profitable, well-managed banks often have very high loan-to-deposit ratios. Although rural banks make considerably less use of non-deposit funds than banks headquartered in metropolitan areas, evidence shows that most rural banking markets are served by

Farm Finance

Farmers & Bankruptcy Law Reform

The current debate on national bankruptcy policy is affecting agriculture, with Federal legislation pending that would extend the life of the flexibility provisions for family farmers under Chapter 12 of the bankruptcy code. The rising tide of bankruptcy filings in the U.S. despite a strong economy has prompted legislative proposals to address the problem. In 1997, a record 1.4 million bankruptcy petitions were filed, up 19.1 percent from a year earlier and the seventh consecutive annual record.

The National Bankruptcy Review Commission, authorized in 1994, presented a 1,498-page report to Congress with 172 recommendations in October 1997. The report contains a chapter on farmer bankruptcy, including recommendations to make Chapter 12 farmer bankruptcy legislation permanent, to increase the eligible debt limit from \$1.5 to \$2.5 million per farm, and to change payment procedures of bankruptcy court trustees. For the agricultural sector, income risk has increased, adding to the significance of the bankruptcy issue—under the 1996 Farm Act, farm payments are no longer tied to commodity prices. Although no major, sustained weather adversity has occurred since implementation of the 1996 farm legislation, this perennial threat adds another factor to the agricultural bankruptcy equation.

A revised bankruptcy policy is likely to emerge in the current Congress, driven by the impending Chapter 12 sunset date of October 1, 1998, and by popular support for extending protections for family farmers. Chapter 12, which originated with the Family Farmer Bankruptcy Act of 1986, was a response to the farm financial crisis of the early to mid-1980's. Added to the bankruptcy code on November 28, 1986, Chapter 12 was set to expire on October 1, 1993, but Congress extended it for another 5 years.

In July 1997, legislation was introduced in the Senate to make Chapter 12 permanent, and passed by voice vote in October. The House has not acted on this legislation, but a bankruptcy package that includes Chapter 12 extension was passed by the Judiciary committee on May 14, 1998.

Chapter 12 gives family farmers considerably more leverage to demand concessions from lenders in the bankruptcy process than under the code normally governing reorganization of business debt (Chapter 11). Most farmer bankruptcy reorganizations are now filed under its provisions. Chapter 12 allows family farms (as defined in the bankruptcy code) with regular income to adjust their debts and protect their assets. It makes available to farmers a bankruptcy procedure whereby debtors submit a repayment plan directly to the bankruptcy court, with no review by creditors (the equivalent of a Chapter 13 bankruptcy program for individuals with regular income). Chapter 12 bankruptcy plans are made for 3 years, but with court approval may be extended to 5 years.

Creditors cannot reject a court-approved debt repayment plan developed under Chapter 12 if the plan will provide them at least as much as under a Chapter 7 filing, in which debtor assets are liquidated. Farmers can reduce the amount they owe, extend the payment period, and lower the interest rate on existing loans to the current fair market rate or lower. As a consequence, secured creditors' bargaining positions are weakened. The writedown or "discharge" of secured debt is limited to the current market value of the underlying land or other asset, which can be less than the original loan value. In return, the farmer agrees to a repayment plan for the remaining debt.

When Chapter 12 went into effect in 1986, its immediate impact was to slow the pace of farm liquidations. Since its enactment through December 1997, some 19,610 cases have been filed under its provisions. The farmer bankruptcy rate, based on Chapter 12 data, has stabilized, although at a level above that for all farmer bankruptcies prior to the farm financial crisis of the early to mid-1980's.

Chapter 12 presents policymakers with a dilemma. Do the benefits of Chapter 12 outweigh the costs? And how are the costs distributed? If failing economic operations should not survive, then Chapter 12 has not been a success. According to ERS analysis, the major marginal effect is to encourage both inefficient farmers, who would otherwise liquidate, and efficient farmers, who would otherwise continue their operations at greater expense, to reorganize their businesses under the protection of bankruptcy. The Chapter 12 provisions increase the legal and administrative costs of bankruptcy by encouraging bankruptcy filings by some farmers who would not otherwise have done so. They also raise indirect costs by giving farmers the opportunity to reorganize inefficient farms, although this impact could be mitigated by allowing lenders to recapture writedowns in secured debt if asset values recover.

If good social policy dictates keeping farmers in business regardless of their profitability, then Chapter 12 has succeeded. It provides family farmers facing bankruptcy a streamlined means to reorganize their debts and keep their farms. And the impact of Chapter 12 goes beyond the 19,610 farmers who have filed under its provisions through 1997 because the potential leverage it affords debtors encourages lender-borrower negotiations out of court and encourages more prudence in granting farm credit.

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For more information on bankruptcy and other issues in agricultural and rural finance, visit the Economic Research Service web site at <http://www.econ.ag.gov/epubs/pdf/aib724/>

banks that use nonlocal sources of funds to some extent. Overall, adequate funds are available from banks for agricultural loans, with few banks reporting a shortage of loanable funds.

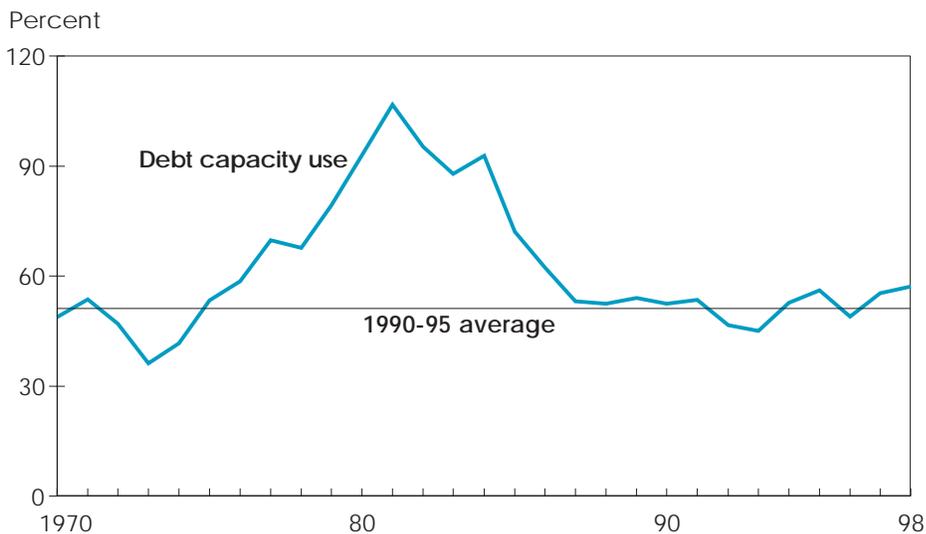
Overall lending by individuals and others will increase about 5 percent. This category includes land contract sales of real estate, and merchant and dealer credit on the non-real estate side. The growth of merchant and dealer credit is forecast to expand over 7 percent in 1998, with much of this growth generated by captive or subsidiary finance divisions of farm input suppliers. Life insurance company lending to farmers is expected to be quite strong in 1998, with a forecast growth of 4 percent. Active companies continue to have sufficient loanable funds to meet demand and are aggressively competing on rates, terms, and loan-to-value ratios.

The FCS—a collection of federally chartered, borrower-owned credit cooperatives that lend primarily to agriculture—held total farm business loans of \$42.6 billion at the end of 1997, up 6.9 percent from a year earlier. It accounted for 28.4 percent of the increase in all outstanding farm loan volume in 1997. FCS non-real estate loans grew by an impressive 45.4 percent from yearend 1993 through 1997. FCS mortgage debt is expected to rise about 3.8 percent in 1997, the fourth consecutive annual gain after declines in 9 of the previous 10 years.

The FCS, which has access to national money markets and can provide needed farm credit at competitive rates, is well positioned to supply farmers' future credit needs. The system has demonstrated financial strength in recent years while undergoing massive restructuring of its organization and procedures. In an effort to enhance loan quality and expand market share, the FCS is offering farm customers competitive interest rates and credit arrangements. The FCS gained farm loan market share the past 3 years after a gradual loss over the previous 12 years, and in 1998, FCS farm business debt is forecast to increase about 3.5 percent.

FSA outstanding farm loans declined in 1997. The agency held only 5 percent of all farm business debt in 1997, down from 16.3 percent in 1987. The availability of

Farm Loans As Share of Repayment Capacity Is Stable



1997 and 1998 projected; based on Economic Research Service projections of maximum debt that farmers could repay out of current income.

Economic Research Service, USDA

direct FSA loans to operators of family-sized farms unable to obtain credit elsewhere continues to decline as the agency continues the emphasis on guaranteed loans that began in the early 1980's. Despite adequate loan authority in fiscal 1997, total FSA direct loans decreased 8.7 percent in calendar 1997 to \$8.3 billion, and its loan portfolio is expected to continue declining.

FSA's funding authority to *guarantee* loans by commercial and cooperative lenders will be down 11.6 percent in fiscal 1998. Loan guarantees totaling \$1.57 billion were issued in fiscal 1997, down 14.9 percent from fiscal 1996, despite the emphasis on guaranteed loans. FSA loan demand in 1998 is difficult to predict because it depends in part on the extent of adverse weather as well as on economic conditions that affect the farm sector. The increase in farm business loans guaranteed by the Small Business Administration in recent years has resulted in a downturn in demand for FSA-guaranteed loans.

Adequate Credit Access in 1998

The outlook for 1998 indicates that competition remains keen among lenders for high-quality farm loans. Trends in the general economy should maintain stable

to lower interest rates, which will tend to sustain farm loan demand.

But the generally favorable conditions that have strengthened the financial position of farm lenders over the past several years could change somewhat in 1998. Lenders will be dealing with a farm sector whose economic performance is forecast to be slightly under the 1990-97 average. Net cash income declined 8.2 percent in 1997 and is forecast to decline another 5-6 percent in 1998. And the impact of the forecast decline in 1998 will not be evenly distributed over all farm operations but will vary by region, commodity, and farm size.

Producers continue to be cautious in acquiring new debt, and lenders continue to carefully scrutinize the creditworthiness of borrowers. Farmers will need to demonstrate adequate cash flow, and some marginal operators and beginning farmers will continue to lack credit access. Some farmers experiencing rising debt and/or lower net cash income may have difficulty meeting their debt service obligations. But farmers who are good credit risks are in a strong position to acquire credit in 1998.

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Resources & Environment



Agriculture & Wetlands: Is "No Net Loss" Achievable?

No net loss" of wetlands is a Federal policy goal that emerged in 1989 and has garnered bipartisan support. To date, "no net loss" has been interpreted to mean wetlands should be conserved wherever possible, and that acres of wetlands converted to other uses must be offset through restoration and creation of other wetlands, maintaining or increasing the total wetland resource base. The Clinton administration's 1998 water quality initiative calls for a net gain of 100,000 acres of wetlands per year beginning in 2005.

Wetlands issues have figured prominently in policy debates at the Federal and State level since the mid-1970's. The public benefits that accrue from keeping wetlands in their natural state often run counter to private interests in converting wetlands to uses with higher economic returns.

But over the last 25 years, greater scientific understanding of the functions of wetlands has increased general recognition of the public benefits of conserving and restoring them. Direct and indirect public incentives for wetland conversion have been withdrawn, wetland conversion has been regulated in Federal water quality legislation and in numerous State laws,

farm program benefits have been tied to wetland conservation, and voluntary programs have been funded to restore cropland formerly converted from wetlands. Thirty-three States have adopted the "no net loss" goal in administering their environmental protection programs.

Recent reductions in wetland losses and increases in wetland restoration have resulted in significant progress toward achieving the "no net loss" goal, due largely to reduced agricultural conversion. How have these changes come about? Is "no net loss" an optimal goal? Can it be achieved and sustained in the future? What is agriculture's role?

Recognizing Public Benefits

Wetlands are complex ecosystems that provide a range of ecological, biological, and hydrologic benefits that are recognized by society. Providing fish and wildlife habitat is the most widely recognized wetland function. Because organisms may depend totally or partially on wetlands for shelter, feeding, or breeding habitat, losses can cause declines in biodiversity or threaten the sustainability of remaining species, populations, and ecosystems.

For example, high wetland losses in California have threatened 220 animal and 600 plant species. Long-term (1955-85) declines of mallard and pintail duck populations (35 and 50 percent) are related to wetland losses. Some 41 U.S. fish species that spend part of their life cycles in wetlands have become extinct in the past century, and 28 percent of freshwater fish species are seriously reduced in abundance and distribution. Over one-third of all bird species in North America rely on wetlands, and wetlands are the preferred habitat for many fur-bearing animals, such as muskrat, beaver, otter, mink, and raccoon.

Wetlands improve water quality by functioning as living filters, removing nutrients and sediments from surface and ground waters. Wetlands retain or remove nutrients through uptake by plant life, adsorption into sediments, deposits of detritus such as organic matter, and chemical precipitation. Vegetation and flat topography in wetlands slow water flow, causing sediments to be deposited in the wetland, and reducing siltation of rivers, lakes, and streams. Wetlands are often found where the water table is close to the surface, resulting in fluctuating discharge or recharge of groundwater supplies.

Wetlands function as a barrier to shoreline erosion from wave action because their interlocking root systems stabilize soil at the water's edge, enhance soil accumulation through sediment trapping, curb wave action, and slow water currents. Wetlands act as huge sponges, temporarily storing flood waters and releasing them slowly, thus reducing flood peaks and protecting downstream property owners from damage. Wetlands are often natural flood conveyances, channeling flood waters from upland areas into receiving waters and mitigating extreme flood events.

Because of the varied functions performed by wetlands, they are a resource valued by fishermen, hunters, boaters, downstream property owners, public water supply and flood control authorities, and recreationists. Owners of wetlands cannot realize the full societal benefits of wetlands because landowners generally cannot earn returns on such benefits. However, the benefits of converting wetlands to cropland and other uses can be realized directly by farmers and other landowners.

Governments seek to balance competing private and public claims on wetlands through a combination of regulatory programs and economic incentives. Federal wetlands programs have evolved from incentives for conversion, to regulatory programs for conservation and incentives that encourage restoration and retention. In addition, 44 States have wetland laws, and wetland definitions in 46 States are comparable to those used in Federal programs. However, enforcement of wetland policies is less widespread: 40 States have staffing for their programs, 33 track and enforce wetland permits, but only 26 have penalties for violation of their wetland laws.

Is “No Net Loss” an Optimal Goal?

In determining whether “no net loss” of wetlands is an appropriate policy goal in the U.S. today, the difficulty lies in estimating the socially optimal mix of wetland protection and conversion, taking into account the marginal benefits and costs both to individual landowners and to the public. The total initial stock of wetlands in the contiguous U.S. at the time of European settlement is estimated to have been about 221 million acres. Today, unconverted wetland acreage is about 124 million acres, and converted wetland acreage about 97 million.

The net marginal benefits realized by individual landowners from *protecting* an incremental acre of wetlands are relatively low, since few of the benefits of wetland protection can be captured by individual landowners. Examples of private benefits that can be captured include hunting, fishing, scenic enjoyment, recreational opportunities, and possibly economic returns from haying, grazing, or timber harvesting. The individual’s marginal benefits from protection would be expected to decline as the amount of protected wetland acreage rises.

The net marginal benefits realized by individual landowners from *converting* an incremental acre of wetlands are relatively high, since conversion makes possible more intensive agricultural or developed uses that provide returns directly to the individual landowner. Marginal benefits from conversion would decline as converted wetland acreage increases. The

privately optimal allocation of wetlands is the point at which converting an additional acre would cost a landowner the same in terms of foregone benefits from protection as would be gained in benefits from conversion.

Both conversion and protection generate public benefits in addition to private benefits. In the case of wetland *conversion*, these may include increased agricultural output, lower consumer prices, protection of public health, and national expansion and settlement. However, public benefits to conversion are now small, since settlement is no longer a national priority, alternative means have been found to protect public health, and remaining wetlands capable of conversion are small relative to the cropland base.

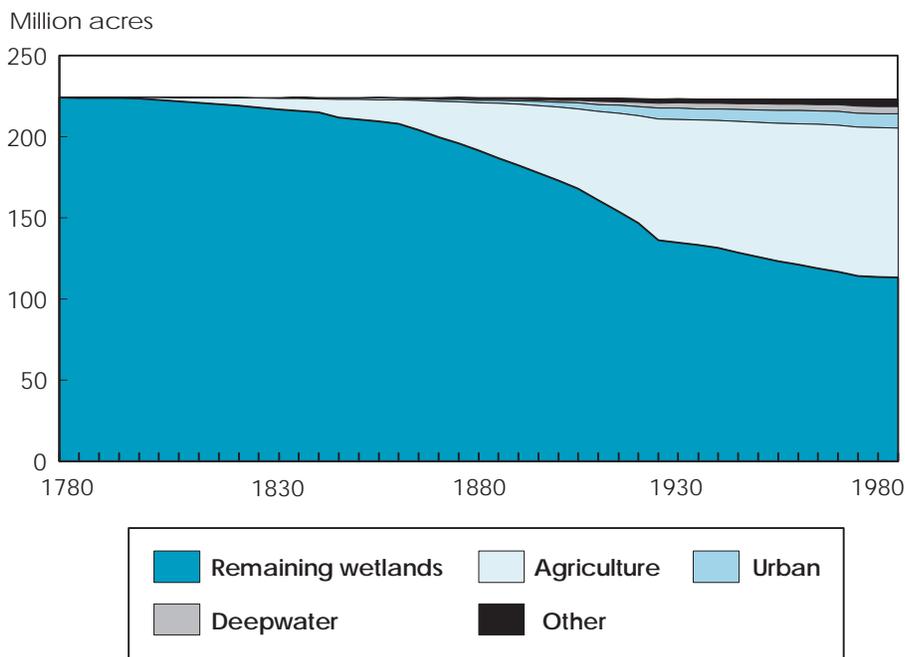
In the case of wetland *protection*, most benefits accrue to the *public*. Adding public benefits of protection to the individual marginal benefits results in marginal benefits to society significantly higher than the individual benefits alone. Thus the socially optimal allocation of the initial stock of wetlands implies more wetlands

protected and less converted than under the privately optimal allocation.

From European settlement through the mid-20th century, public benefits of wetland protection were not recognized. Even if benefits had been recognized, the initial stock of wetlands was sufficiently high that the marginal benefits of protecting any were low. By contrast, both public and private benefits from *conversion* were recognized, motivating public subsidies for wetland drainage and conversion. Thus, what was considered the socially “optimal” level of wetland conversion was relatively high. But as the public benefits of wetland protection became more fully appreciated, the socially optimal allocation of wetland resources implied a higher level of wetland *protection*.

Given the difficulty in estimating public benefits and private costs represented by different wetland policies, the socially optimal allocation of wetlands is uncertain. If we have already reached the individual’s optimal allocation, then “no net loss” would be inadequate from a public policy perspective; a net *gain* of wetlands

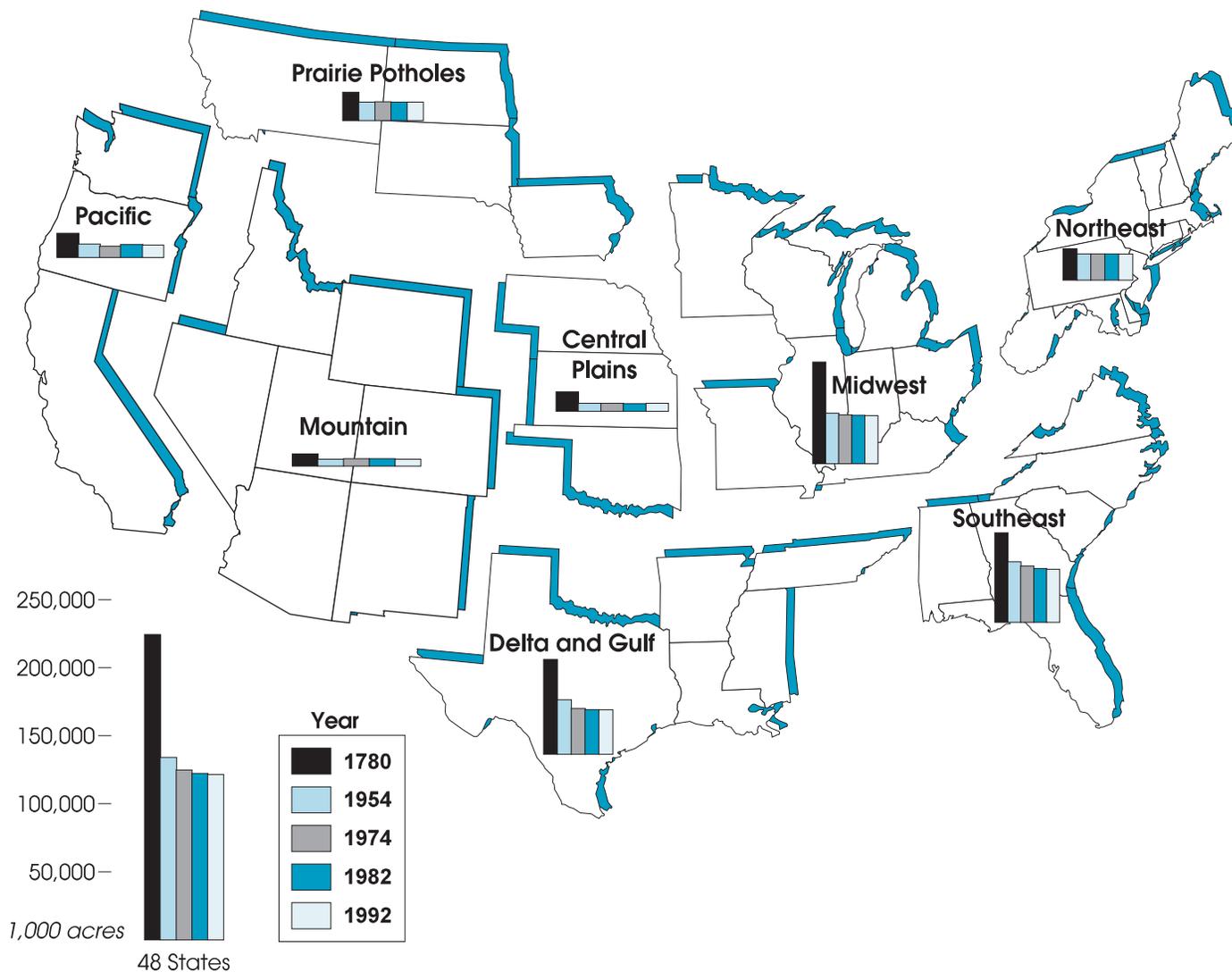
Wetland Conversion Has Levelled Off in Recent Years



Deepwater habitats are manmade and natural permanently flooded areas.
Economic Research Service, USDA

Resources & Environment

Remaining Wetlands Are Concentrated in the Southeast, Midwest, and Delta



Economic Reserach Service, USDA

would be necessary to reach the socially optimal allocation. On the other hand, if historic wetland conversion has just brought us to the socially optimal allocation, then “no net loss” is an appropriate policy goal. The “no net loss” goal represents a preference for the *status quo*, reflecting a compromise between those who believe that too few wetlands have been converted and those who believe that too many have been lost.

Section 404 of the Clean Water Act implements the “no net loss” goal with a regulatory review process that handles small conversions through general permits, and conducts thorough, qualitative

reviews of the social costs and private benefits of major proposals impacting wetlands. A comparison between private benefits and social costs is made for each permit, despite the fact that balancing these costs and benefits for optimization is impossible to assess for U.S. wetlands as a whole.

Have We Achieved “No Net Loss”?

A reassessment of national data on wetland conversion that addressed interagency differences in methods over time confirmed a dramatic reduction in wetland losses between the 1950’s and the 1990’s.

Net rates of wetland conversion have dropped, from an estimated more than 800,000 acres per year before 1954 to less than 80,000 acres per year in 1982-92.

Agriculture’s share of annual gross conversion dropped from more than 80 percent over the period 1954-74 to 20 percent during the decade 1982-92. These long-term reductions in wetland conversion for agriculture coincide with enactment of Federal and State wetland conservation programs starting in 1972, and passage of the Swampbuster provisions in the 1985 Food Security Act to protect wetlands from conversion by farm program participants. Pressure to convert wetlands to

cropland also subsided in 1982-92 as commodity prices fell, but it is difficult statistically to separate policy and market factors.

The U.S. appears to be approaching achievement of “no net loss” of wetland acreage in the 1990’s. Some have suggested that Federal wetland programs can now be eliminated. However, eliminating current wetland programs would likely increase wetland conversion rates, depending on other economic factors. A critical question is whether progress toward the goal can be sustained. In order to sustain the “no net loss” goal, wetland losses will have to be further reduced, or wetland restoration will have to be dramatically increased.

During the last farm bill debate, proposals to exempt many wetlands from Swampbuster provisions were considered, but rejected. If farm program payments are reduced at the end of the current farm act (2002), the disincentive (under Swampbuster) for wetland conversion is also reduced. Simulations by USDA’s Economic Research Service (ERS) show that without Swampbuster, increased wetland conversion for agriculture is likely.

In the short run, 5.8 to 13.2 million acres would convert profitably to agricultural production, based on USDA baseline expected prices. However, in the long run, increased crop acreage would increase commodity supplies, depress commodity prices for all farmers, and result in reductions of farm income of \$1.6 to \$3.2 billion annually. The relatively few landowners with wetlands to convert would have minor increases in farm incomes, while the majority of farmers, with no wetlands to convert, would see their farm income reduced.

Some have suggested compensating wetland owners for the burden of existing conservation and restoration programs. Compensating wetland owners would be costly, ranging from \$30 to \$180 billion for all wetlands depending on the extent of wetlands compensated, the timing of compensation payments, and interactions between compensation and the rate of wetland conversion. And compensation for the large acreage of agricultural wet-

lands, while substantial, pales by comparison with the smaller but much higher valued acreage of wetlands subject to urban development. Even with recent and forecast Federal budget surpluses, it is unlikely that political support will be forthcoming for such massive expenditures to conserve wetlands.

Wetland restoration programs have restored nearly 500,000 acres of previously converted wetlands. USDA’s Wetland Reserve Program, which is authorized to restore and protect up to 975,000 acres of cropland that was formerly wetlands, is the largest and most visible of a host of restoration programs being implemented by government agencies, many in partnership with organizations like Ducks Unlimited and The Nature Conservancy. Accounting problems prevent a clear assessment of the role of restoration programs in achieving “no net loss,” but budget constraints again make it unlikely that restoration programs alone can sustain “no net loss” in the face of diminished regulatory programs.

Finally, although the reduced pace of wetland loss gives rise to optimism about achieving “no net loss” of wetland acreage, it raises new issues about the quality of wetlands conserved. Maintaining and improving the quality of remaining wetlands is an important goal because fully functioning wetlands provide services valued by society that degraded wetlands cannot.

An ERS analysis of changes in soil erosion, irrigation, deforestation, and urbanization in watersheds with significant wetlands indicates that 75 percent of watersheds have suffered degradation in some or all of these four wetland quality indicators. Decreases in forest cover occurred in 87 percent of wetland watersheds, and increased urbanization in 96 percent. Improvements in two of the indicators were seen in some watersheds—more than 60 percent showed reductions in water-caused soil erosion, and 22 percent had decreases in irrigation.

Policy changes are largely responsible for the reduction in wetland conversion overall, especially the reduction in wetland

Evolution of Wetland Policy for Agriculture

Wetland policy in the U.S. has evolved from promoting drainage and conversion from the mid-19th century through the 1970’s, to initiatives aimed at protecting remaining wetlands and restoring others. Key recent policies include:

- **1972:** Regulation of dredge and fill activity in wetlands under Section 404 of the Clean Water Act (Federal Water Pollution Control Act Amendments)
- **1977:** Elimination of direct Federal incentives for wetland conversion in Executive Order 11990
- **1985:** Denial of farm program benefits for producers who convert wetlands for crop production after 1985 in the so-called Swampbuster provisions of the Food Security Act
- **1986:** Elimination and tightening of provisions that created favorable income tax treatment of wetland conversion in the Tax Reform Act

conversion for agriculture since the mid-1980’s. In the absence of these policies, the economic incentives for agricultural wetland conversion, especially in periods of favorable commodity prices, are sufficient to encourage substantial additional wetland conversion for crop production. Because achievement of the “no net loss” goal depends on public and private efforts, the goal may not be sustained if economic conditions spur additional wetland conversion, if Section 404 is weakened, if Swampbuster’s leverage from farm program payments is diminished, or if continued funding for wetland restoration programs is not forthcoming.

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Based on a forthcoming report by USDA’s Economic Research Service. Also contributing to this article: Keith Wiebe, Roger Claassen, Dwight Gadsby, and Robert House.

Special Article

Livestock Sectors Restructuring In CEE/NIS Countries

One of the most dramatic adjustments brought on by liberalization of the economies of Central and Eastern Europe (CEE) and the Newly Independent States (NIS) has been the virtual free fall in the livestock sectors. With liberalization, consumer and producer subsidies for meat were eliminated, and producers were exposed to new international competition. Consumer demand plummeted, and producers were increasingly squeezed between falling output prices and skyrocketing production costs. The result: a drastic decline in livestock inventories.

The situation is beginning to change, however, in some of the transition economies, particularly in the CEE countries. In general, the restructuring process is quite far along in Poland and Hungary, but remains incomplete in most of the NIS countries. Poland never did experience the declining trend in hog numbers that was observed in the other countries, and hog and poultry numbers have begun to stabilize elsewhere in CEE countries. Cattle numbers continue to decline, however, and inventories of all species are still declining in the NIS countries.

In order to identify the reasons behind the diverging paths these countries have taken and to analyze scenarios for future development, USDA's Economic Research Service (ERS) has been studying the restructuring of the livestock sectors of the transition economies. The project focuses on five countries—Poland, Hungary, Romania, Russia, and Ukraine—that represent a cross-section of the ongoing structural changes. ERS has analyzed some of the differences that have emerged among these countries since 1990 and the reasons behind the relative success of countries such as Poland and Hungary.

Economic Liberalization Led to Restructuring

The decline in the CEE and NIS livestock sectors began with the price and trade liberalization early in the transition of these economies from central planning to market orientation. Producer and consumer subsidies were removed or drastically reduced, price controls were removed, and nontariff border restrictions were abolished, allowing a flood of imports from the West. The response on both the supply and demand sides came swiftly. Real incomes fell as prices rose faster than wages, and consumer demand for meat plummeted. On the supply side, producers were squeezed between rising prices of feed and other inputs, which adjusted quickly to world levels, and falling real output prices.

A second factor affecting the livestock sector is the farm restructuring and land redistribution that took place in many of these countries. Early in the transition, especially in the CEE countries, state farms and cooperatives were privatized, restructured, or liquidated—a process generally accompanied by the wholesale transfer of animals into private hands. The new livestock owners lacked adequate facilities for the animals and could not afford proper feed, leading to widespread slaughter—even of prize breeding animals—or export of live animals. Livestock that



remained on large state-owned complexes, often heavily indebted and short of cash even when supported by soft government loans, usually did not fare any better.

Producer Response Linked to Farm Structure

The initial effect of the macroeconomic shocks on livestock varied across species and depended also on the structure of production before the transition.

Poultry declined significantly throughout the region in the early years of the transition. Poultry is more dependent than other livestock on high-quality protein feed and suffered more from the deterioration in feed quality. The CEE and NIS countries also found it difficult to compete with low-cost chicken legs from the U.S.

In general, poultry fared better in Poland and Hungary, in part because a large share of production was private before the transition. Both countries also had a well-established tradition of contracting between processing plants and producers, whereby processors provided baby chicks and feed against delivery of finished birds. Poultry in Romania, Russia, and Ukraine tended to be concentrated in large state-owned complexes, which were heavily subsidized under the previous communist regimes and had great difficulty adjusting to the new economic conditions.

Cattle numbers fell sharply throughout Eastern Europe and are still in decline. Consumers there greatly prefer pork to beef; cattle

are raised primarily for dairy production, with beef mainly a byproduct. Before the transition, dairy products were subsidized even more than meat. Following removal of these subsidies, there was a significant drop in consumer demand. East European cattle numbers were severely affected by the dairy industry's collapse.

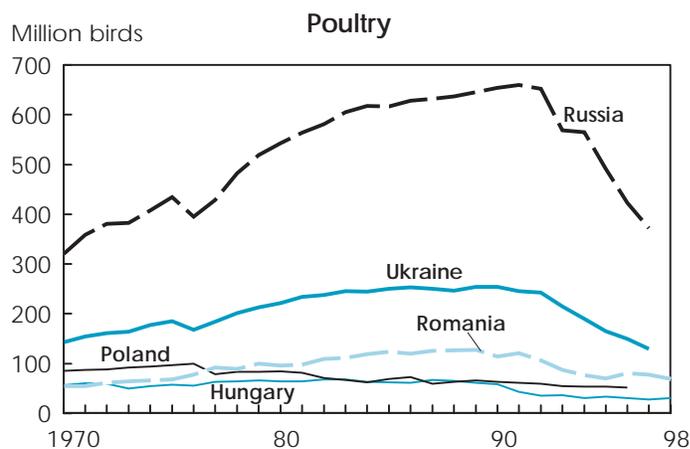
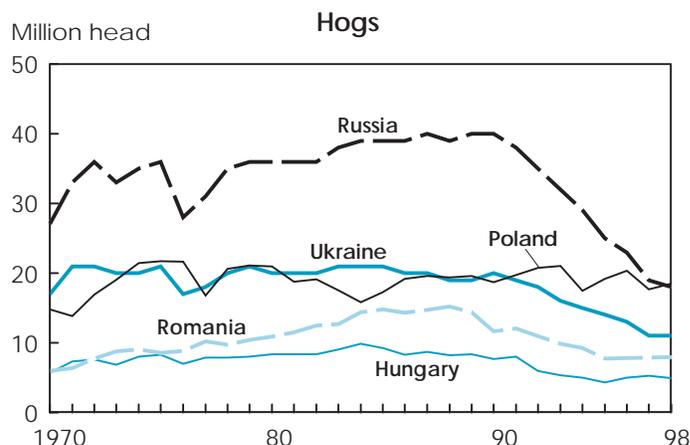
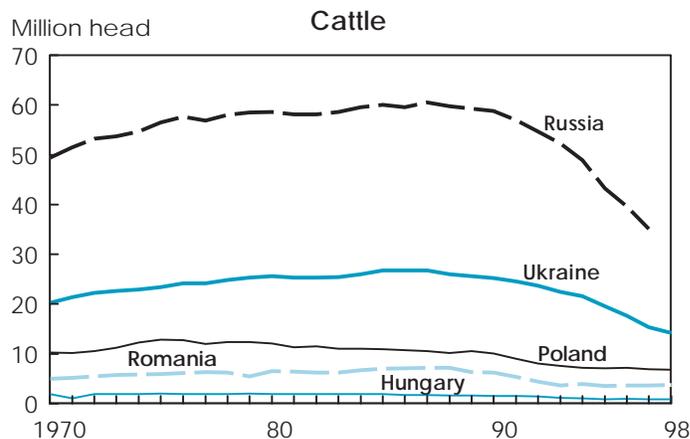
In the NIS, in contrast, cattle did not fare as badly as hogs and poultry. In Russia, beef is preferred to pork, and meat and dairy products were subsidized about equally. Cattle in the NIS were likely less affected by a demand shock from the removal of dairy subsidies than were CEE cattle. Also, NIS cattle producers were able to substitute forage crops and pasture grazing for mixed feed to a greater extent than were cattle producers in Eastern Europe. In Romania, for example, most cattle were on cooperatives before the economic transition. These cooperatives were liquidated in 1991, and that process was accompanied by massive redistribution of cattle to private producers, most of whom did not have sufficient land to keep them. The NIS did not experience the liquidation of cooperative farms that occurred in many of the East European countries, so producers continued to have access to grazing land. In Poland, farms were already small and fragmented—not well-suited for grazing cattle.

Trends in hog numbers varied considerably across the region and seem to have been linked closely to changes in farm structure. In Poland, 75 percent of hogs were on private farms even before its economic transition in 1989. Poland has had a clearly defined hog cycle since 1970, and this pattern did not change after 1989—hog numbers continue to rise or fall in response to grain prices. Elsewhere, hog inventories dropped sharply in the early years of the transition and continue to decline in the NIS, although they've recently recovered in CEE countries.

Hogs in Russia, Ukraine, and Romania were concentrated on very large, state-owned complexes, some with as many as 500,000 animals. The complexes were heavily dependent on concentrated feeds based on imported protein meal. They received substantial subsidies and tended to employ large amounts of both labor and capital. In addition, the complexes in Russia and Ukraine generally did not have enough land to grow their own feed, and many were also located far from feed and energy supplies. With the economic transition, prices of feed, energy and other inputs rose, while output prices and subsidies fell. The complexes responded by slaughtering livestock, although in many cases the animals simply starved to death. However, the farms continued to employ large numbers of workers and were not relieved of their social welfare obligations such as health care, housing, and pensions.

Hog complexes in Romania operated under somewhat more favorable conditions than those of the NIS, until 1997. Most complexes were in Romania's grain belt and were able to grow their own feed grains. But Romanian hog complexes were in precarious financial condition and remained afloat only through soft credit and subsidies from the state. The government that took power in January 1997 cut these subsidies and began privatization in earnest, which has reduced hog numbers in 1997 and 1998.

Livestock Inventories Stabilizing in CEE Countries, But Continuing To Fall in NIS



CEE: Poland, Hungary, Romania; NIS: Russia, Ukraine.

Some recent data unavailable.

Sources: Statistical yearbooks of respective countries.

Economic Research Service, USDA

Special Article

In contrast to the experience of state-owned hog operations, hog numbers in the private sector rose in most of the transition economies. Alternate feed rations for hogs are more available than for poultry, and private producers responded to transition-induced increases in concentrated feed prices by substituting lower quality feeds. The result was lower feed productivity (more kilograms of feed required per unit of liveweight gain), longer feed-out times, and less meat output per animal. Private producers have essentially substituted their own labor (which has had a low opportunity cost) for high-priced material inputs, which has allowed private hog producers to hold their own. Most of these hogs, however, are produced on subsistence farms—very little of this output enters the market.

Poland, Hungary Move Forward While Others Lag

Seven years into the transition, some CEE countries are much further along in the restructuring process than other transition economies. Inventories and output of all livestock continue their decline in Russia and Ukraine. In contrast, hog and poultry numbers are stabilizing or even increasing in Poland and Hungary, although cattle numbers continue to lag. Pork and poultry output are on the rise, and livestock exports from Poland and Hungary have risen as both countries find markets in the West. Livestock numbers stabilized in Romania in 1995 and 1996, but the sector is once again in decline with the disruptions caused by privatization. Romania, Russia, and Ukraine continue to be net importers of livestock products.

A significant class of commercially oriented private producers in Poland and Hungary now recognizes the importance of meeting the quality standards of foreign markets. Many producers in both countries still produce mainly for their own consumption, but even in Poland, where the average farm size is still just 8 hectares (up from 7 in 1990), a growing number of producers have 50 or more animals and produce mainly for the market. In Hungary, around half the animals belong to corporate farms, many of which are foreign-owned.

Polish and Hungarian producers are tending toward more efficient use of higher quality feed ingredients—the ratio of kg of feed to kg of liveweight gain for poultry is around 2 to 1, and for hogs close to 3 to 1. The improvement has been particularly impressive in Poland, where feed ratios of 6 to 1 were typical for hogs in 1989. Polish farmers have almost entirely abandoned feeding potatoes to hogs, in favor of grains. Preparing potatoes for use as feed is very labor-intensive, and apparently the value of labor has increased to the point where this practice is not regarded as economical. Only the very smallest two-hog farms still feed potatoes.

Poland and Hungary are also further along in privatizing the processing sector. The processing industry in Hungary is fully privatized (thanks largely to foreign investment), and about 60 percent of the Polish meat processing industry is privatized. Even in Polish companies in which the state retains a share, managers are under pressure to keep the companies afloat without support from the state treasury. Failing plants are allowed to go bankrupt rather than being bailed out with soft loans.

Poland & Hungary: Upgrading To Meet EU Standards

The prospect of eventual European Union (EU) accession increasingly dictates agricultural policies in Hungary and Poland and has led to measures encouraging livestock producers and processors to upgrade their operations so that they can meet EU standards. Various measures are being taken to induce producers to grow leaner hogs. Hogs in both countries are rapidly approaching 60-percent lean content. Polish plants that produce more than 250 kg per week must have equipment to measure the fat content precisely and are required to pay producers a premium for high lean yield over 60 percent and a discount for lean content under 60 percent.

Hungary provides a variety of subsidies and price supports to encourage plants to raise their lean yield standards. The system of guaranteed prices has been replaced by a set of target prices, but this support only applies for hogs slaughtered at plants applying EU standards. In addition, any Hungarian producer who trades in an ordinary sow for a swine with an acceptable pedigree can receive a subsidy of 30 percent of the value of the new sow; the producer must be a member of the Hungarian Breeders Association and must use boars or semen provided by the association. This subsidy is not attractive for small producers, since these high-quality animals must be raised in good conditions, which raises production costs.

Poland's intervention in the meat market is much less pervasive than Hungary's. But like Hungary, much of Polish support to livestock producers is intended to encourage the development of larger units that will be able to produce according to EU standards. Poland's Agency for Agricultural Markets (AMA) carries out intervention purchasing of hogs, but plants authorized to purchase on behalf of the AMA must be licensed to export and must meet EU standards. Further more, all carcasses purchased must meet the EU grading standard.

These measures have encouraged the development of a class of private, commercial livestock producers. In each country, a segment of small-scale producers remains, producing for home consumption or for sale to small processors who do not meet EU standards, but these producers are increasingly left to their own devices. The new policies are costly and, especially in Hungary, distort production decisions, but they have contributed to the creation of better functioning markets.

The commercial livestock industry has not developed to this extent in Romania, Russia, or Ukraine. Livestock in these three countries is still owned by either small, subsistence-level farms or inefficient, quasi-privatized corporate farms. As subsidies are cut further, the corporate farms continue to contract. Moreover, private producers in Russia and Ukraine have depended heavily on their close relationship with corporate farms—they have free use of land and are able to acquire other inputs from their “mother” farms. As subsidies to the state farms have been reduced, private producers have lost some of these benefits. Also, marketing channels continue to be dominated by monopolistic state-owned enter-

prises, which serve the needs of state farms. Private producers increasingly bypass these channels and market directly.

Incomplete Institutional Reform Inhibits Restructuring

A major impediment to the complete restructuring of the region's livestock sectors is the poor development of institutions needed to support markets, including clearly defined property rights, bankruptcy procedures, enforcement of contracts, a credit system, and market infrastructure. These institutions are better developed in Poland and Hungary than in Romania, Russia, or Ukraine, but are not fully developed even in Poland and Hungary. The lack of such institutions inhibits the free movement of factors of production and slows the transition of the livestock sector from subsistence farming to a fully commercial sector. Even when relative prices might favor expansion of a part of the livestock sector, producers are often unable to respond because of a lack of these institutional supports.

Enterprise privatization. The privatization of farms and agribusinesses is complete in Hungary and nearly complete in Poland. In Romania, Russia, and Ukraine, state-owned enterprises have been transformed into various types of joint-stock or shareholding companies, but the state continues to be the majority owner.

A significant share of state ownership in the production and processing of livestock and other products inhibits private producers' options. State production units tend to receive a disproportionate share of state subsidies, giving them an advantage over private producers. State dominance of marketing channels limits marketing options, tends to depress producer prices, and leads to direct marketing. State ownership of grain storage and feed mills also raises production costs for private producers.

More rapid enterprise privatization is blocked by several impediments. These countries lack bankruptcy procedures or enforcement mechanisms and privatization procedures may be clumsy. Overvaluation of assets discourages potential investors, and sometimes privatization agencies are reluctant to allow a large, vertically integrated enterprise to be dismantled. Employees of the state-owned enterprises also tend to resist privatization, fearing unemployment and loss of benefits such as health care. Restrictive labor laws put in place to protect these workers discourage potential investors who may want to shed some of the labor.

Land markets. The development of land markets is also critical to agricultural markets. Poorly functioning land markets block the development of economies of scale and perpetuate subsistence farming. Without clear title, producers cannot offer land as collateral for credit. Moreover, without clear ownership rights, those using land have no incentive to conserve the resource, resulting, for example, in overgrazing and environmental degradation.

Land markets are undeveloped in most of the transition economies and are completely lacking in Russia and Ukraine. While members of the former collective and state farms received rights to shares of land, the absence of titles impedes their ability

to farm a plot of land privately, or to sell or lease it. In Romania, 80 percent of the land has been in private hands since 1991, but a moratorium placed on land sales was only recently lifted, and there are not yet any procedures to facilitate land transfers.

In Poland, land is privately owned with clear titles and there are no legal restrictions on sales or leases. Yet in practice, the land sale market is extremely thin with little demand, since agriculture is still not considered profitable. At the same time, landowners remain reluctant to sell because of limited employment opportunities outside agriculture.

Land sales are legal in Hungary as well, but only individuals may buy and sell land; restructured cooperatives and commercial companies can only lease land. Consequently, a Hungarian landowner whose piece of land is in the middle of a large tract leased by a cooperative will find very few potential buyers.

Market infrastructure. The market infrastructure (transportation, storage and handling facilities, processing and retail networks, communications, and market information) inherited from the centrally planned economies was heavily centralized, designed to meet the state's needs and entirely inadequate for smoothly functioning markets.

Poland and Hungary have seen significant improvements in their physical infrastructure: highways have been upgraded, public transportation has improved, and telephone communications are more reliable. These improvements are made possible largely through foreign investment and technical assistance. The improved infrastructure has reduced transaction costs and helped to attract more foreign investment.

Russia, Romania, and Ukraine, however, have seen very little investment in market infrastructure. In Russia and Ukraine, transport services are centered on railroads, and limited highways are deteriorating. Transportation costs from farmgate to consumer in Russia are estimated to be 20-40 percent of the costs of production. Because the existing market structures are geared toward serving large cooperatives and state farms, emerging private producers face severe infrastructural limitations. As a result, private producers increasingly bypass these marketing channels and market directly to consumers, slowing the development of an efficient economywide distribution system.

The high transactions costs associated with poor market infrastructure explain the apparent anomaly that Russian meat processing operations located near the large urban markets of Moscow and St. Petersburg actually prefer importing meat over contracting for domestic meat to maintain processing capacity.

Market information. Market information—broadly disseminated reports of daily prices on different markets—is essential to the efficient movement of goods. Market news reporting is now well developed in Poland and Hungary and is improving in Russia, but remains rudimentary in Romania and Ukraine. The lack of widely available market information creates a severe handicap for small, private producers. Large producers, both state and private, have their own sources of information. Low-cost, publicly

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available information helps level the playing field so that small producers can compete.

Credit. Private producers are frequently limited in their decision-making by a lack of ready cash. A hog producer may believe that changes in relative prices of hogs and feed would make expanding the operation profitable. But without credit, producers find it difficult to purchase additional animals or feed, let alone invest in a new barn or small feed mill.

Both supply of and demand for commercial credit is constrained in the region. Producers are unwilling or unable to pay commercial interest rates. Banks view agriculture as risky and unprofitable, and are particularly reluctant to lend to producers who cannot offer land as collateral. Governments have attempted to step in with a variety of subsidized credit programs—in many cases, loans are provided against future delivery of output. But these programs offer mainly short-term credit, and governments in the region frequently lack the funds to meet even a small share of the demand for credit.

Rule of law. Russia, Ukraine, and Romania lag significantly behind Poland and Hungary in the development of a market-based legal framework that underlies the sanctity of commercial contracts and other aspects of the rule of law in commerce. Inconsistent application of the law and random enforcement of penalties continue to undermine business transactions in these three countries, as does the ad hoc recognition of property rights by regional governments. Widespread corruption and the ever-present “mafia” still impede commerce in many cases. Such conditions greatly increase the risk of investment, diverting expansion capital elsewhere.

For countries such as Romania, Ukraine, and Russia, the question remains open whether their governments will make real progress in removing institutional obstacles to full restructuring of the livestock sector. If they do, and land, labor, and capital begin to move freely, the coming decade should see the consolidation of household plots into commercially viable farms and the emergence of a class of true corporate farms operating on a hard budget constraint. But an equally realistic scenario suggests little progress toward institutional reform, with further declines in inventories in the short term as governments find themselves unable to subsidize state farms at the current level. Eventually, the declines would halt and the livestock sectors in these countries could exist for several years at a low-level equilibrium.

The future of Poland and Hungary is increasingly tied to preparations for EU accession. Completion of institutional reform will be a prerequisite for membership, and the principal question is *when* rather than *whether* these reforms will be complete. Thus,

questions about the future net trade position of these two countries and the changing balance of factors used in livestock production and processing industries (and between meat production and non-agricultural sectors) have become paramount.

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8:30 July Releases—USDA's Agricultural Statistics Board

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

July

- 1 Broiler Hatchery
Dairy Products
- 2 Cheddar Cheese Prices (8:30 a.m.)
- 6 Egg Products
Poultry Slaughter
Crop Progress (after 4 p.m.)
- 7 Noncitrus Fruits and Nuts, Annual
- 8 Broiler Hatchery
- 9 Vegetables
- 10 Cheddar Cheese Prices (8:30 a.m.)
Crop Production (8:30 a.m.)
- 13 Crop Progress (after 4:00 p.m.)
- 15 Broiler Hatchery
Milk Production
Turkey Hatchery
- 17 Cheddar Cheese Prices (8:30 a.m.)
Cattle
Cattle on Feed
Sheep
- 20 Cold Storage
Farm Production Expenditures
Crop Progress (after 4:00 p.m.)
- 21 Agricultural Chemical Usage, Fruits
Chickens and Eggs
- 22 Broiler Hatchery
- 23 Agricultural Prices, Annual
Mink
- 24 Cheddar Cheese Prices (8:30 a.m.)
Catfish Processing
Livestock Slaughter
- 27 Crop Progress (after 4:00 p.m.)
- 29 Broiler Hatchery
Peanut Stocks and Processing
- 30 Catfish Production
- 31 Cheddar Cheese Prices (8:30 a.m.)
Agricultural Prices

To learn more . . .

See “Restructuring of the Livestock Sectors in the Transition Economies of the NIS and Central and Eastern Europe,” an article in the forthcoming ERS publication *Transition Economies: International Agriculture and Trade Report*. Printed copies available this month; call 1-800-999-6779 to order. Watch for it on the Economic Research Service website at www.econ.ag.gov

Statistical Indicators

Summary Data

Table 1—Key Statistical Indicators of the Food & Fiber Sector

				1997		1998				1999 F
	1997	1998 F	1999 F	III	IV	I	II	III	IV	I
Prices received by farmers (1990-92=100)	107	--		107	108	107	106	--	--	--
Livestock & products	99	--		98	99	99	97	--	--	--
Crops	115	--		116	117	115	113	--	--	--
Prices paid by farmers (1990-92=100)								--	--	--
Production items	116	--		115	117	116	115	--	--	--
Commodities and services, interest, taxes, and wages	116	--		116	117	116	116	--	--	--
Cash receipts (\$ bil.) ¹	201	198		48	44	49	61	48	42	48
Livestock	93	91		23	23	23	23	23	22	23
Crops	109	107		25	21	26	38	25	20	25
Market basket (1982-84=100)										
Retail cost	--	--		159	160	161	160	--	--	--
Farm value	--	--		107	106	105	106	--	--	--
Spread	--	--		187	189	191	189	--	--	--
Farm value/retail cost (%)	--	--		24	23	23	23	--	--	--
Retail prices (1982-84=100)										
All food	160	161		157	158	159	157	160	161	161
At home	160	161		158	158	159	158	161	161	160
Away from home	160	161		156	157	159	157	160	161	162
Agricultural exports (\$ bil.) ²	57.4	56.0		14.9	13.2	12.9	16.3	14.4	12.9	12.5
Agricultural imports (\$ bil.) ²	35.8	38.0		9.1	9.3	8.7	9.2	9.4	9.5	9.9
Commercial production										
Red meat (mil. lb.)	43,209	44,677	43,640	10,939	11,167	11,038	11,149	11,342	11,148	10,746
Poultry (mil. lb.)	33,258	34,240	35,370	8,398	8,383	8,245	8,665	8,705	8,625	8,510
Eggs (mil. doz.)	6,460	6,632	6,765	1,606	1,667	1,637	1,640	1,665	1,690	1,665
Milk (bil. lb.)	156.6	157.7	159.4	38.8	38.2	39.3	40.9	38.9	38.6	39.7
Consumption, per capita										
Red meat and poultry (lb.)	208.6	214.7	213.3	52.5	53.9	52.0	54.0	54.4	54.4	52.1
Corn beginning stocks (mil. bu.) ³	425.9	883.2		425.9	6,903.0	4,494.1	2,496.6	883.2	7,246.8	4,937.1
Corn use (mil. bu.) ³	8,849.5	9,050.0		2,819.8	2,411.2	2,001.3	1,617.1	3,004.2	2,311.6	--
Prices ⁴										
Choice steers--Neb. Direct (\$/cwt)	66.32	65-68	70-76	65.65	66.61	61.73	65-67	65-69	69-75	70-76
Barrows and gilts--IA, So. MN (\$/cwt)	51.36	36-38	36-39	54.45	43.53	34.74	37-39	39-41	35-37	34-36
Broilers--12-city (cents/lb.)	58.80	56-59	55-59	62.00	54.00	56.40	57-59	58-62	53-57	54-58
Eggs--NY gr. A large (cents/doz.)	81.20	75-78	70-76	79.70	88.20	79.00	69-71	73-77	80-86	72-78
Milk--all at plant (\$/cwt)	13.34	13.40- 13.90	13.15- 14.15	12.63	14.53	14.60	13.15- 13.45	12.40- 13.00	13.55- 14.45	13.55- 14.55
Wheat--KC HRW ordinary (\$/bu.)	4.16	--		4.57	4.49	3.76	3.82	3.62	--	--
Corn--Chicago (\$/bu.)	2.78	--		2.86	2.86	2.64	2.74	2.72	--	--
Soybeans--Chicago (\$/bu.)	7.60	--		7.74	8.54	7.19	6.95	6.68	--	--
Cotton--avg. spot 41-34 (cents/lb)	69.89	--		70.73	69.81	71.40	67.64	64.48	--	--
	1989	1990		1991	1992	1993	1994	1995	1996	1997
Farm real estate values ^{5,6}										
Nominal (\$ per acre)	668	683		703	713	736	782	832	890	945
Real (1982 \$)	539	528		521	507	511	529	550	574	598

F = Forecast. -- = Not available. 1. Quarterly data seasonally adjusted at annual rates. 2. Annual data based on Oct.-Sept. fiscal years ending with year indicated. 3. Sept.-Nov. first quarter; Dec.-Feb. second quarter; Mar.-May third quarter; Jun.-Aug. fourth quarter; Sept.-Aug. annual. Use includes exports and domestic disappearance. 4. Simple averages, Jan.-Dec. 5. 1990-94 values as of January 1. 1986-89 values as of February 1. 6. The 1989-94 values are revised based on the 1992 Census of Agriculture.

U.S. & Foreign Economic Data

Table 2—U.S. Gross Domestic Product & Related Data

	Annual			1996		1997				1998
	1995	1996	1997	III	IV	I	II	III	IV	I
<i>Billions of current dollars (quarterly data seasonally adjusted at annual rates)</i>										
Gross Domestic Product	7,265.4	7,636.0	8,079.9	7,676.0	7,792.9	7,933.6	8,034.3	8,124.3	8,227.4	8,332.2
Gross National Product	7,270.6	7,637.7	8,060.1	7,669.1	7,796.1	7,919.2	8,013.6	8,103.5	8,204.2	--
Personal consumption expenditures	4,957.7	5,207.6	5,485.8	5,227.4	5,308.1	5,405.7	5,432.1	5,527.4	5,577.8	5,659.4
Durable goods	608.5	634.5	659.3	634.5	638.2	658.4	644.5	667.3	666.8	692.2
Nondurable goods	1,475.8	1,534.7	1,592.0	1,538.3	1,560.1	1,587.4	1,578.9	1,600.8	1,600.9	1,616.1
Food	735.1	756.1	776.4	757.4	766.6	775.5	771.4	779.3	779.4	784.7
Clothing and shoes	254.7	264.3	277.3	265.7	266.2	275.2	274.8	280.5	278.7	289.0
Services	2,873.4	3,038.4	3,234.5	3,054.6	3,109.8	3,159.9	3,208.7	3,259.3	3,310.0	3,351.0
Gross private domestic investment	1,038.2	1,116.5	1,242.5	1,149.2	1,151.1	1,193.6	1,242.0	1,250.2	1,284.1	1,329.8
Fixed investment	1,008.1	1,090.7	1,174.1	1,112.0	1,119.2	1,127.5	1,160.8	1,201.3	1,206.8	1,250.9
Change in business inventories	30.1	25.9	68.4	37.1	31.9	66.1	81.1	48.9	77.2	79.0
Net exports of goods and services	-86.0	-94.8	-101.1	-114	-88.6	-98.8	-88.7	-111.3	-105.3	-123.4
Government consumption expenditures and gross investment	1,355.5	1,406.7	1,452.7	1,413.5	1,422.3	1,433.1	1,449.0	1,457.9	1,470.9	1,466.4
<i>Billions of 1992 dollars (quarterly data seasonally adjusted at annual rates)¹</i>										
Gross Domestic Product	6,742.1	6,928.4	7,188.8	6,943.8	7,017.4	7,101.6	7,159.6	7,214.0	7,280.0	7,356.0
Gross National Product	6,748.7	6,932.0	7,174.4	6,940.2	7,023.1	7,091.8	7,144.4	7,198.8	7,262.6	--
Personal consumption expenditures	4,595.3	4,714.1	4,867.5	4,718.2	4,756.4	4,818.1	4,829.4	4,896.2	4,926.1	4,994.6
Durable goods	583.6	611.1	645.5	611.9	617.1	637.8	629.0	656.1	659.3	687.7
Nondurable goods	1,412.6	1,432.3	1,458.5	1,433.9	1,441.2	1,457.8	1,450.0	1,465.5	1,460.9	1,479.6
Food	690.5	689.7	689.7	687.3	689.0	694.6	688.2	689.5	686.6	688.9
Clothing and shoes	257.5	267.7	278.0	270.8	270.0	277.1	273.8	281.3	279.6	291.0
Services	2,599.6	2,671.0	2,764.1	2,672.8	2,698.2	2,723.9	2,749.8	2,776.1	2,806.4	2,830.5
Gross private domestic investment	991.5	1,069.1	1,197.0	1,100.3	1,104.8	1,149.2	1,197.1	1,204.6	1,237.2	1,289.2
Fixed investment	962.1	1,041.7	1,123.6	1,060.9	1,068.7	1,079.0	1,111.4	1,149.3	1,154.6	1,202.2
Change in business inventories	27.3	25.0	65.7	37.9	32.9	63.7	77.6	47.5	74.0	77.0
Net exports of goods and services	-98.8	-114.4	-146.5	-138.9	-105.6	-126.3	-136.6	-164.1	-159.1	-199.7
Government consumption expenditures and gross investment	1,251.9	1,257.9	1,269.6	1,261.5	1,261.8	1,260.5	1,270.1	1,273.4	1,274.4	1,268.1
GDP implicit price deflator (% change)	2.5	2.3	2.0	2.6	109.0	2.4	1.8	1.4	1.4	0.9
Disposable personal income (\$ bil.)	5,355.7	5,608.3	5,885.2	5,644.6	5,695.8	5,790.5	5,849.9	5,908.9	5,991.4	6,094.5
Disposable per. income (1992 \$ bil.)	4,964.2	5,076.9	5,221.9	5,094.8	5,103.8	5,161.1	5,200.9	5,234.1	5,291.4	5,378.7
Per capita disposable pers. income (\$)	20,349	21,117	21,969	21,229	21,373	21,689	21,865	22,034	22,285	22,620
Per capita disp. pers. income (1992 \$)	18,861	19,116	19,493	19,161	19,152	19,331	19,439	19,518	19,681	19,963
U.S. resident population plus Armed Forces overseas (mil.) ²	263.0	265.5	267.9	265.7	266.4	266.9	267.5	268.1	268.9	269.3
Civilian population (mil.) ²	261.4	263.9	266.4	264.1	264.9	265.4	266.0	266.6	267.3	267.8
	Annual			1997				1998		
	1995	1996	1997	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<i>Monthly data seasonally adjusted</i>										
Total industrial production (1992=100)	116.0	120.2	127.0	124.9	129.1	130.4	130.9	131.0	130.7	130.4
Leading economic indicators (1992=100)	100.8	102.0	103.8	103.4	104.4	104.5	104.5	104.6	105.0	105.2
Civilian employment (mil. persons) ³	124.9	126.7	129.6	129.0	129.9	130.6	130.8	131.1	131.2	131.0
Civilian unemployment rate (%) ³	5.6	5.4	4.9	5.2	4.8	4.6	4.7	4.7	4.6	4.7
Personal income (\$ bil. annual rate)	6,150.8	6,495.2	6,873.9	6,788.2	6,970.4	7,019.8	7,050.4	7,088.9	7,134.4	7,157.5
Money stock-M2 (daily avg.) (\$ bil.) ⁴	3,651.2	3,826.1	4,040.2	3,868.9	3,993.2	4,017.5	4,040.2	4,064.6	4,096.1	4,123.4
Three-month Treasury bill rate (%)	5.51	5.02	5.07	5.14	4.95	5.15	5.16	5.09	5.11	5.03
AAA corporate bond yield (Moody's) (%)	7.59	7.37	7.27	7.55	7.00	6.87	6.76	6.61	6.67	6.72
Total housing starts (1,000) ⁵	1,354.1	1,476.8	1,474.0	1,477	1,529	1,523	1,540	1,545	1,635	1,590
Business inventory/sales ratio ⁶	1.43	1.39	1.37	1.36	1.37	1.38	1.37	1.37	1.37	--
Sales of all retail stores (\$ bil.) ⁷	2,346.3	2,465.1	2,546.3	214.5	213.5	213.8	214.9	217.1	220.9	220.8
Nondurable goods stores (\$ bil.)	1,405.6	1,457.8	1,505.4	125.8	126.7	126.2	125.9	126.9	128.1	128.4
Food stores (\$bil.)	408.4	424.2	432.1	36.0	36.3	36.4	36.2	36.0	36.1	36.3
Apparel and accessory stores (\$ bil.)	109.5	113.0	116.8	9.7	9.8	9.8	9.8	10.0	10.3	10.3
Eating and drinking places (\$ bil.)	239.9	238.4	244.1	19.7	20.5	20.3	20.5	20.6	20.3	20.4

-- = Not available. 1. In April 1996, 1992 dollars replaced 1987 dollars. 2. Population estimates based on 1990 census. 3. Data beginning January 1994 not directly comparable with data for earlier periods because of a major redesign of household survey questionnaire. 4. Annual data as of December of year listed. 5. Private, including farm. 6. Manufacturing and trade. 7. Annual total. *Information contact: David Johnson (202) 694-5324*

Table 3—World Economic Growth

	Calendar year*									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	<i>Real GDP, annual percent change</i>									
World	3.6	2.5	1.8	1.8	1.5	3.0	2.6	3.2	3.3	2.7
OECD	3.7	2.8	1.7	1.6	0.9	2.7	2.0	2.7	2.8	2.5
U.S.	3.4	1.2	-0.9	2.7	2.3	3.5	2.0	2.8	3.8	3.2
Canada	2.5	0.3	-1.9	0.9	2.5	3.9	2.2	1.2	3.8	3.3
Japan	4.8	5.2	3.8	1.0	0.3	0.7	1.4	4.1	0.9	0.2
Australia	4.3	1.5	-0.7	2.4	3.8	5.5	3.5	3.6	3.1	3.2
European Union	3.5	3.1	3.6	0.9	-0.6	2.9	2.5	1.8	2.6	2.9
France	4.3	2.5	0.8	1.2	-1.3	2.8	2.1	1.5	2.3	3.0
Germany	3.7	5.9	13.4	1.8	-1.2	2.8	1.9	1.4	2.3	2.8
Italy	2.9	2.2	1.1	0.6	-1.2	2.2	2.9	0.7	1.5	2.4
Spain	4.7	3.7	2.3	0.7	-1.2	2.1	2.9	2.3	3.4	3.9
United Kingdom	2.3	0.6	-2.1	-0.5	2.2	4.5	2.8	2.5	3.1	2.1
Eastern Europe	1.7	-4.1	-7.1	-12.3	-7.5	-9.5	-2.1	-1.1	1.1	3.2
Poland	0.3	-10.8	-6.3	2.0	3.7	4.6	6.6	6.1	6.9	6.0
Former Soviet Union	1.8	-3.4	-12.5	-18.0	-11.1	-14.7	-5.4	-3.7	0.0	0.8
Russia	1.9	-3.6	-5.0	-14.5	-8.7	-12.6	-4.0	-2.8	0.4	0.8
Ukraine	3.9	-3.8	-8.4	-9.7	-14.2	-23.5	-11.8	-10.0	-3.2	0.0
East Asia										
China	4.5	3.3	9.1	14.0	13.6	12.7	10.6	9.6	8.9	7.5
Taiwan	8.2	5.4	7.5	6.8	6.3	6.5	6.1	5.7	6.8	3.6
Korea	6.4	9.7	9.2	5.3	5.7	8.8	8.9	7.1	5.6	-2.1
Southeast Asia										
Indonesia	9.0	8.9	8.9	7.2	7.2	7.5	8.1	8.0	4.7	-5.1
Malaysia	9.1	9.7	8.8	7.8	8.4	9.4	9.4	8.6	7.8	1.0
Philippines	6.2	2.7	-0.2	0.3	2.1	4.4	4.8	5.7	5.1	-0.5
Thailand	12.2	11.7	8.0	8.1	8.3	8.8	8.7	5.5	-0.4	-2.5
South Asia										
India	6.6	5.6	0.5	5.3	4.0	6.3	6.1	7.5	5.5	4.1
Pakistan	4.8	4.5	5.5	7.8	1.9	3.9	4.4	4.5	3.8	4.3
Latin America										
Mexico	1.2	-1.5	2.9	2.5	4.7	5.8	2.0	3.5	4.6	2.7
Argentina	4.2	5.1	4.2	3.7	2.0	4.4	-6.2	5.2	7.0	4.5
Brazil	-6.3	0.2	8.9	8.6	6.0	7.4	-4.6	4.2	8.4	4.7
Colombia	3.3	-4.6	0.5	-1.2	4.5	5.8	3.0	2.8	3.0	1.0
Venezuela	3.4	4.1	1.8	4.2	5.2	5.8	5.3	2.0	2.8	3.8
Venezuela	-8.7	6.6	9.7	6.1	0.3	-2.8	2.2	-0.4	5.0	2.5
Middle East										
Israel	0.9	6.8	7.7	5.6	5.6	6.9	7.0	4.5	2.1	2.8
Saudi Arabia	0.0	8.7	8.4	2.8	-0.6	0.5	-0.5	1.4	2.7	0.8
Turkey	0.3	9.3	0.9	6.0	8.0	-5.5	7.0	7.2	7.2	6.1
Africa										
Egypt	2.8	1.1	1.0	-0.2	1.7	2.3	2.8	4.5	2.8	4.3
South Africa	3.0	2.4	2.1	0.3	0.5	2.0	2.4	4.2	4.9	4.5
South Africa	2.5	-1.0	-1.0	-2.6	1.3	2.4	3.4	3.1	1.7	3.0

*The last three years are either estimates or forecasts. *Information contact: Alberto Jerardo (202) 694-5323*

Source: Oxford Economic Forecasting.

Farm Prices

Table 4—Indexes of Prices Received & Paid by Farmers, U.S. Average

	Annual			1997			1998			
	1995	1996	1997	Apr	Nov	Dec	Jan	Feb	Mar	Apr
	1990-92=100									
Prices received										
All farm products	102	112	107	106	107	105	103	101	102	105
All crops	112	126	115	116	114	111	110	110	111	116
Food grains	134	157	128	140	122	119	116	117	118	115
Feed grains and hay	112	146	117	125	112	112	113	113	113	107
Cotton	127	122	112	112	112	105	100	102	105	103
Tobacco	103	105	104	--	106	110	110	110	104	97
Oil-bearing crops	104	128	130	146	119	119	119	117	114	111
Fruit and nuts, all	100	118	109	90	114	89	77	89	94	108
Commercial vegetables	120	109	120	113	125	133	127	120	127	156
Potatoes and dry beans	107	114	93	86	93	96	99	103	107	114
Livestock and products	92	99	99	99	98	97	94	94	95	95
Meat animals	85	87	92	94	88	87	84	82	82	84
Dairy products	98	114	102	101	112	112	113	113	110	108
Poultry and eggs	107	120	114	111	113	107	105	104	108	109
Prices paid										
Commodities and services, interest, taxes, and wage rates	110	115	116	117	116	116	116	116	116	116
Production items	109	115	116	117	115	115	114	113	114	114
Feed	104	130	122	127	116	116	113	110	112	111
Livestock and poultry	82	75	93	94	93	94	92	93	91	94
Seeds	110	115	119	120	120	120	120	120	120	123
Fertilizer	120	124	121	124	117	115	114	114	114	114
Agricultural chemicals	115	119	121	119	123	123	124	123	122	122
Fuels	94	105	103	105	102	94	86	82	89	91
Supplies and repairs	112	115	117	117	118	118	118	118	118	118
Autos and trucks	107	108	109	120	109	109	109	109	119	119
Farm machinery	120	125	128	127	129	129	129	129	131	132
Building material	114	115	118	118	118	118	118	118	118	118
Farm services	118	118	118	116	118	117	116	116	116	116
Rent	116	119	119	121	119	119	124	124	124	124
Int. payable per acre on farm real estate debt	101	105	106	107	106	106	108	108	108	108
Taxes payable per acre on farm real estate	109	112	115	115	115	115	119	119	119	119
Wage rates (seasonally adjusted)	114	117	123	122	126	126	131	131	131	131
Production items, interest, taxes, and wage rates	109	114	116	117	115	115	115	115	115	115
Ratio, prices received to prices paid (%)*	93	98	92	91	92	91	89	87	88	91
Prices received (1910-14=100)	647	712	679	676	679	665	653	642	650	665
Prices paid, etc. (parity index) (1910-14=100)	1,437	1,504	1,527	1,541	1,524	1,520	1,523	1,517	1,525	1,528
Parity ratio (1910-14=100) (%)*	45	47	45	44	45	44	43	44	43	44

Values for two most recent months are revised or preliminary. *Ratio of index of prices received for all farm products to index of prices paid for commodities and services, interest, taxes, and wage rates. Ratio uses the most recent prices paid index. *Information contact: David Johnson (202) 694-5324.*

For historical data or for categories not listed here, call the National Agricultural Statistics Service (NASS) Information Hotline at 1-800-727-9540.

Internet users can access the NASS Home Page at <http://www.usda.gov/nass>.

Table 5—Prices Received by Farmers, U.S. Average

	Annual ¹			1997			1998			
	1994	1995	1996	Apr	Nov	Dec	Jan	Feb	Mar	Apr
Crops										
All wheat (\$/bu.)	3.45	4.55	4.30	4.10	3.50	3.45	3.33	3.27	3.32	3.23
Rice, rough (\$/cwt)	6.78	9.15	9.50	10.30	9.71	9.67	9.52	9.66	9.55	9.38
Corn (\$/bu.)	2.26	3.24	2.70	2.80	2.51	2.52	2.56	2.55	2.54	2.36
Sorghum (\$/cwt)	3.80	5.69	4.20	4.34	3.93	3.94	4.02	4.06	4.02	3.79
All hay, baled (\$/ton)	86.70	82.20	93.00	112.00	101.00	97.70	98.10	97.20	97.50	101.00
Soybeans (\$/bu.)	5.48	6.72	6.85	8.23	6.85	6.71	6.69	6.57	6.40	6.22
Cotton, upland (cents/lb.)	72.00	75.40	70.60	67.60	67.60	63.80	60.80	62.00	63.40	62.40
Potatoes (\$/cwt)	5.58	6.77	5.11	4.61	5.36	5.40	5.55	5.86	6.25	6.65
Lettuce (\$/cwt) ²	13.30	23.50	14.80	15.60	22.10	21.30	19.00	10.90	13.40	27.30
Tomatoes fresh (\$/cwt) ²	27.40	25.80	28.50	26.30	44.20	48.40	31.10	48.00	33.20	38.20
Onions (\$/cwt)	9.87	9.87	9.58	14.90	10.20	10.90	13.20	16.00	21.20	20.80
Beans, dry edible (\$/cwt)	22.50	20.80	24.20	23.00	18.30	20.20	21.10	21.40	20.10	21.10
Apples for fresh use (cents/lb.)	18.60	24.00	20.90	15.60	22.90	23.70	22.30	21.60	21.30	19.20
Pears for fresh use (\$/ton)	223.00	272.00	375.00	454.00	330.00	287.00	253.00	260.00	243.00	282.00
Oranges, all uses (\$/box) ³	6.37	6.11	6.93	4.94	2.15	2.53	2.58	3.53	4.75	5.82
Grapefruit, all uses (\$/box) ³	5.26	4.61	4.63	6.40	2.49	2.57	1.79	1.61	1.03	1.36
Livestock										
Cattle, all beef (\$/cwt)	66.50	61.80	58.70	64.80	63.30	62.90	62.50	60.40	61.30	63.20
Calves (\$/cwt)	87.10	73.10	58.40	82.20	82.90	83.30	86.60	88.70	89.80	90.70
Hogs, all (\$/cwt)	39.50	40.50	51.90	53.80	45.10	41.60	36.00	35.70	34.80	35.00
Lambs (\$/cwt)	64.80	78.20	88.20	96.40	83.50	84.10	78.40	73.40	70.00	--
All milk, sold to plants (\$/cwt)	13.01	12.78	14.75	13.20	14.60	14.60	14.70	14.70	14.40	14.10
Milk, manuf. grade (\$/cwt)	11.85	11.79	13.43	11.60	13.60	13.50	13.50	13.50	12.90	12.40
Broilers, live (cents/lb.)	35.00	34.40	38.10	36.70	34.30	32.10	33.10	34.40	35.20	36.50
Eggs, all (cents/doz.) ⁴	67.25	62.40	75.00	66.00	80.60	78.70	74.00	64.70	69.90	63.50
Turkeys (cents/lb.)	40.70	41.00	43.30	39.70	42.30	38.60	35.50	34.00	34.60	35.70

-- = Not available. Values for last two months revised or preliminary. 1. Season-average price by crop year for crops. Calendar year average of monthly prices for livestock. 2. Excludes Hawaii. 3. Equivalent on-tree returns. 4. Average of all eggs sold by producers including hatching eggs and eggs sold at retail. Information contact: David Johnson (202) 694-5324. For historical data or for categories not listed here, call the National Agricultural Statistics Service (NASS) Information Hotline at 1-800-727-9540. Internet users can access the NASS Home Page at <http://www.usda.gov/nass>

Producer & Consumer Prices

Table 6—Consumer Price Indexes for All Urban Consumers, U.S. Average (not seasonally adjusted)

	Annual			1997			1998			
	1995	1996	1997	Apr	Nov	Dec	Jan	Feb	Mar	Apr
	1982-84=100									
Consumer Price Index, all items	152.4	156.9	160.5	160.2	161.5	161.3	161.6	161.9	162.2	162.5
CPI, all items less food	153.1	157.5	161.1	160.8	162.1	161.8	161.9	162.3	162.6	163.0
All food	148.4	153.3	157.3	156.6	158.5	158.7	159.9	159.4	159.7	159.8
Food away from home	149.0	152.7	157.0	156.2	158.6	159.0	159.2	159.6	159.9	160.2
Food at home	148.8	154.3	158.1	157.5	159.1	159.2	161.0	160.0	160.2	160.2
Meats ¹	135.5	140.2	144.4	143.4	144.6	143.4	143.2	142.4	142.2	140.8
Beef and veal	134.9	134.5	136.8	136.2	137.0	136.9	136.8	135.9	136.8	136.5
Pork	134.8	148.2	155.9	153.6	155.5	153.0	152.1	151.5	149.5	145.9
Poultry	143.5	152.4	156.6	155.4	157.4	155.2	155.1	155.3	155.1	154.3
Fish and seafood	171.6	173.1	177.1	176.9	178.9	177.2	180.7	180.9	180.3	181.0
Eggs	120.5	142.1	140.0	140.0	145.1	151.1	143.8	137.3	136.4	139.1
Dairy products ²	132.8	142.1	145.5	145.7	147.0	147.8	148.3	147.7	148.4	148.5
Fats and oils ³	137.3	140.5	141.7	142.4	140.4	140.3	140.5	141.5	142.2	140.7
Fresh fruits	219.0	234.4	236.3	235.8	233.9	239.4	240.2	240.3	235.9	241.6
Processed fruits	137.1	145.2	148.8	148.4	147.8	148.4	--	--	--	--
Fresh vegetables	193.1	189.2	194.6	191.8	205.2	205.2	233.8	210.5	220.2	219.7
Potatoes	174.7	180.6	174.2	163.9	174.3	175.0	180.2	179.3	181.6	179.9
Processed vegetables	138.3	143.9	147.2	147.1	146.2	145.9	--	--	--	--
Cereal and bakery products	167.5	174.0	177.6	176.9	178.0	178.4	179.0	179.7	179.6	180.2
Sugar and sweets	137.5	143.7	147.8	147.9	147.4	147.9	150.3	149.6	150.8	150.1
Nonalcoholic beverages	131.7	128.6	133.4	131.9	134.7	133.1	134.1	134.8	134.2	133.9
Apparel										
Apparel, commodities less footwear	129.3	128.5	129.4	133.3	131.4	127.6	--	--	--	--
Footwear	125.4	126.6	127.6	129.3	129.3	128.2	127.4	126.6	126.5	127.9
Tobacco and smoking products	225.7	232.8	243.7	243.2	250.7	251.2	253.8	261.2	254.1	263.5
Alcoholic beverages	153.9	158.5	162.8	162.3	163.7	164.0	164.6	165.0	165.1	165.2

-- = Not available. 1. Beef, veal, lamb, pork, and processed meat. 2. Includes butter. 3. Excludes butter. Information contact: David Johnson (202) 694-5324. For historical data or for categories not listed here, call the Bureau of Labor Statistics' CPI Information Hotline (202) 606-7828.

Table 7—Producer Price Indexes, U.S. Average (not seasonally adjusted)

See the May 1998 issue.

Information contact: David Johnson (202) 694-5324.

Farm-Retail Price Spreads

Table 8—Farm-Retail Price Spreads

	Annual		1996		1997					
	1994	1995	1996	Dec	Jul	Aug	Sep	Oct	Nov	Dec
Market basket¹										
Retail cost (1982-84=100)	145.4	149.4	155.9	159.7	159.8	160.0	160.4	160.6	161.0	162.8
Farm value (1982-84=100)	101.4	102.7	110.8	106.2	106.5	105.2	103.6	106.8	105.5	107.2
Farm-retail spread (1982-84=100)	169.0	174.6	180.3	188.6	188.5	189.6	190.9	189.6	191.0	192.8
Farm value-retail cost (%)	24.4	24.1	24.9	23.3	23.3	23.0	22.6	23.3	22.9	23.1
Meat products										
Retail cost (1982-84=100)	135.4	135.5	140.1	144.5	145.5	145.6	145.2	144.7	143.4	143.2
Farm value (1982-84=100)	96.1	93.8	100.4	102.2	104.1	100.5	97.8	97.0	94.8	102.2
Farm-retail spread (1982-84=100)	175.7	178.2	180.9	187.9	188.0	191.9	193.8	193.6	193.3	185.3
Farm value-retail cost (%)	35.9	35.1	36.3	35.8	36.2	34.9	34.1	34.0	33.5	36.1
Dairy products										
Retail cost (1982-84=100)	131.7	132.8	142.1	147.8	143.4	143.5	145.7	147.0	147.8	148.3
Farm value (1982-84=100)	94.5	92.2	107.2	96.6	91.7	94.0	100.6	105.3	104.0	105.7
Farm-retail spread (1982-84=100)	166.1	170.3	174.3	195.0	191.1	189.2	187.3	185.5	188.2	187.5
Farm value-retail cost (%)	34.4	33.3	36.2	31.4	30.7	31.4	33.1	34.3	33.8	34.2
Poultry										
Retail cost (1982-84=100)	141.5	143.5	152.4	158.2	155.6	156.8	155.6	157.4	155.2	155.1
Farm value (1982-84=100)	114.6	113.7	126.2	128.2	128.4	124.2	114.4	113.4	105.7	106.9
Farm-retail spread (1982-84=100)	172.6	177.7	182.6	192.8	186.9	194.3	203.1	208.0	212.2	210.6
Farm value-retail cost (%)	43.3	42.4	44.3	43.4	44.2	42.4	39.3	38.6	36.4	36.9
Eggs										
Retail cost (1982-84=100)	114.3	120.5	142.1	149.0	137.7	136.9	135.9	145.1	151.1	149.0
Farm value (1982-84=100)	83.5	91.1	114.7	113.1	85.6	99.0	91.4	121.9	116.9	143.8
Farm-retail spread (1982-84=100)	169.4	173.2	191.4	213.5	231.3	205.0	215.8	186.9	212.6	223.7
Farm value-retail cost (%)	47.0	48.6	51.9	48.8	39.9	46.5	43.2	54.0	49.7	46.3
Cereal and bakery products										
Retail cost (1982-84=100)	164.2	167.5	174.0	176.5	178.6	178.1	178.4	178.0	178.4	179.0
Farm value (1982-84=100)	102.6	102.6	102.6	112.2	104.1	106.3	103.8	102.7	103.8	100.8
Farm-retail spread (1982-84=100)	171.5	176.5	183.9	185.5	189.0	188.1	188.8	188.5	188.8	189.9
Farm value-retail cost (%)	7.7	7.5	7.2	7.8	7.1	7.3	7.1	7.1	7.1	6.9
Fresh fruit										
Retail cost (1982-84=100)	208.8	226.9	243.0	247.9	246.6	255.6	254.0	243.3	250.1	247.9
Farm value (1982-84=100)	119.4	136.2	151.7	141.3	139.0	147.2	137.1	140.6	159.0	136.6
Farm-retail spread (1982-84=100)	250.1	268.7	285.2	297.1	296.3	305.6	307.9	290.7	292.1	299.3
Farm value-retail cost (%)	18.1	19.0	19.7	18.0	17.8	18.2	17.1	18.3	20.1	17.4
Fresh vegetables										
Retail cost (1982-84=100)	172.3	193.1	189.2	190.6	192.3	189.5	192.8	205.2	205.2	233.8
Farm value (1982-84=100)	121.1	130.1	113.3	99.5	135.2	117.7	113.0	131.2	122.7	126.4
Farm-retail spread (1982-84=100)	198.6	225.5	228.3	237.4	221.7	226.4	233.8	243.2	247.6	289.0
Farm value-retail cost (%)	23.9	22.9	20.3	17.7	23.9	21.1	19.9	21.7	20.3	18.4
Processed fruits and vegetables										
Retail cost (1982-84=100)	134.5	137.5	144.4	148.3	148.7	147.6	147.2	146.9	147.2	147.2
Farm value (1982-84=100)	112.5	119.2	117.2	117.7	115.0	114.6	113.1	115.0	115.1	117.5
Farm-retail spread (1982-84=100)	141.3	143.2	152.9	157.9	159.2	157.9	157.5	156.8	157.2	156.5
Farm value-retail cost (%)	19.9	20.6	19.3	18.9	18.4	18.5	18.4	18.6	18.6	19.0
Fats and oils										
Retail cost (1982-84=100)	133.5	137.3	140.5	142.3	141.4	142.0	141.7	140.4	140.3	140.5
Farm value (1982-84=100)	125.5	121.3	112.3	108.5	104.8	105.7	113.0	117.9	114.3	113.6
Farm-retail spread (1982-84=100)	136.5	143.1	150.9	154.7	154.9	155.4	152.3	148.7	149.9	150.4
Farm value-retail cost (%)	25.3	23.8	21.5	20.5	19.9	20.0	21.4	22.6	21.9	21.8

See footnotes at end of table, next page.

Table 8—Farm-Retail Price Spreads (continued)

	Annual			1997			1998			
	1995	1996	1997	Apr	Nov	Dec	Jan	Feb	Mar	Apr
Beef, All Fresh Retail Price (cts/lb)	259.4	252.4	253.8	253.0	253.4	254.8	253.2	252.7	255.8	255.4
Beef, Choice										
Retail price (cents/lb.) ²	284.4	280.2	279.5	279.0	278.0	280.9	275.3	272.0	273.1	278.2
Wholesale value (cents) ³	163.9	158.1	158.2	159.8	160.2	155.6	154.2	148.5	147.0	151.6
Net farm value (cents) ⁴	138.4	134.9	137.2	140.9	139.5	136.5	135.8	128.0	129.9	136.4
Farm-retail spread (cents)	146.0	145.3	142.3	138.1	138.5	144.4	139.5	144.0	143.2	141.8
Wholesale-retail (cents) ⁵	120.5	122.1	121.3	119.2	117.8	125.3	121.1	123.5	126.1	126.6
Farm-wholesale (cents) ⁶	25.5	23.2	21.0	18.9	20.7	19.1	18.4	20.5	17.1	15.2
Farm value-retail price (%)	49	48	49	51	50	49	49	47	48	49
Pork										
Retail price (cents/lb.) ²	194.8	220.9	231.5	226.5	231.3	226.8	234.8	234.5	229.8	225.0
Wholesale value (cents) ³	98.8	117.2	117.1	120.8	107.9	101.5	96.2	94.0	91.4	91.0
Net farm value (cents) ⁴	66.7	84.6	81.1	86.8	69.9	62.1	57.4	54.6	54.3	55.7
Farm-retail spread (cents)	128.1	136.3	150.4	139.7	161.4	164.7	177.4	179.9	175.5	169.3
Wholesale-retail (cents) ⁵	96.0	103.7	114.4	105.7	123.4	125.3	138.6	140.5	138.4	134.0
Farm-wholesale (cents) ⁶	32.1	32.6	36.0	34.0	38.0	39.4	38.8	39.4	37.1	35.3
Farm value-retail price (%)	34	38	35	38	30	27	24	23	24	25

1. Retail costs are based on CPI-U of retail prices for domestically produced farm foods, published monthly by the Bureau of Labor Statistics (BLS). Farm value is the payment for the quantity of farm equivalent to the retail unit, less allowance for by-product. Farm values are based on prices at first point of sale, and may include marketing charges such as grading and packing for some commodities. The farm-retail spread, the difference between the retail price and farm value, represents charges for assembling, processing, transporting, distributing. 2. Weighted-average price of retail cuts from pork and choice yield grade 3 beef. Prices from BLS. 3. Value of wholesale (boxed beef) and wholesale cuts (pork) equivalent to 1 lb. of retail cuts adjusted for transportation costs and by-product values. 4. Market value to producer for live animal equivalent to 1 lb. of retail cuts, minus value of by-products. 5. Charges for retailing and other marketing services such as wholesaling, and in-city transportation. 6. Charges for livestock marketing, processing, and transportation. *Information contact: Veronica Jones (202) 694-5387, Larry Duewer (202) 694-5172*

Table 9—Price Indexes of Food Marketing Costs

	Annual			1996			1997			
	1995	1996	1997	II	III	IV	I	II	III	IV
	1987=100*									
Labor—hourly earnings and benefits	455.2	459.7	474.3	458.5	459.1	465.3	469.3	473.0	474.6	480.2
Processing	472.5	474.7	486.0	474.6	474.7	480.2	481.4	484.9	487.1	490.5
Wholesaling	502.2	516.0	536.2	514.4	518.3	520.5	526.2	534.1	538.9	545.4
Retailing	417.1	419.9	435.2	417.7	417.3	426.1	432.1	434.1	433.6	441.1
Packaging and containers	415.7	399.8	390.3	400.0	397.0	393.1	392.1	388.7	387.6	392.9
Paperboard boxes and containers	392.1	363.8	341.9	366.1	352.1	348.9	347.2	335.4	334.7	350.3
Metal cans	504.9	498.3	491.0	501.9	502.8	481.8	489.4	496.1	490.8	487.9
Paper bags and related products	457.8	437.8	441.9	434.2	438.2	443.3	443.8	441.6	439.5	442.5
Plastic films and bottles	330.6	326.5	326.6	321.9	328.9	331.9	326.6	325.3	326.9	327.5
Glass containers	463.3	460.5	447.4	460.0	460.3	459.3	449.3	446.9	446.6	446.6
Metal foil	263.1	235.7	233.4	239.9	230.8	229.9	228.2	232.0	237.2	236.4
Transportation services	436.6	429.8	430.0	425.0	428.8	430.2	431.0	430.6	429.0	429.4
Advertising	539.1	580.1	609.4	579.2	580.6	582.8	608.1	608.7	609.3	611.6
Fuel and power	633.7	670.7	668.5	670.3	678.0	699.2	689.5	657.4	658.1	669.0
Electric	511.3	501.3	499.2	503.8	521.0	492.6	488.5	499.0	517.7	491.5
Petroleum	559.7	666.8	616.7	669.3	658.9	745.5	672.8	609.7	574.8	609.6
Natural gas	1,091.7	1,136.7	1,214.0	1,123.6	1,136.7	1,180.9	1,261.1	1,165.7	1,179.7	1,249.4
Communications, water and sewage	284.9	296.8	302.8	297.5	299.1	299.1	301.1	302.2	303.5	304.2
Rent	269.0	268.2	265.6	268.1	268.6	268.3	266.6	265.6	265.1	265.1
Maintenance and repair	486.1	499.6	514.9	497.2	501.4	506.2	509.6	513.0	517.3	519.7
Business services	491.0	501.7	512.3	500.1	503.3	506.6	509.5	511.7	513.9	514.1
Supplies	342.7	338.3	337.8	339.2	338.2	339.0	338.8	337.0	337.5	337.9
Property taxes and insurance	546.8	564.3	580.1	561.8	566.5	570.4	573.6	577.3	582.2	587.3
Interest, short-term	113.5	103.9	108.9	106.8	107.5	104.2	105.3	111.2	108.8	110.1
Total marketing cost index	444.8	452.1	459.9	450.9	451.9	455.6	458.6	458.4	459.1	463.4

Last two quarters preliminary. * Indexes measure changes in employee earnings and benefits and in prices of supplies used in processing, wholesaling, and retailing U.S. farm foods purchased for at-home consumption. *Information contact: Veronica Jones (202) 694-5387*

Livestock & Products

Table 10—U.S. Meat Supply & Use

	Beg. stocks	Production ¹	Imports	Total supply	Exports	Ending stocks	Consumption		Conversion factor ³	Primary market price ⁴
							Total	Per capita ²		
						Million lbs. ⁵		Lbs.		\$/cwt
Beef										
1995	548	25,222	2,103	27,873	1,821	519	25,533	67	0.695	66
1996	519	25,525	2,073	28,117	1,877	377	25,863	68	0.700	65
1997	377	25,490	2,343	28,210	2,136	465	25,609	67	0.700	66
1998	465	25,396	2,675	28,536	2,085	350	26,101	68	0.700	65-68
1999	350	25,931	2,800	27,081	2,155	350	24,576	63	0.700	70-76
Pork										
1995	438	17,849	664	18,951	787	396	17,768	52	0.776	42
1996	396	17,117	618	18,131	970	366	16,795	49	0.776	53
1997	366	17,274	633	18,273	1,044	408	16,821	49	0.776	51
1998	408	18,917	600	19,925	1,075	470	18,380	53	0.776	36-38
1999	470	19,380	570	20,420	1,120	490	18,810	54	0.776	36-39
Veal⁶										
1995	7	319	0	326	0	7	319	1	0.83	75
1996	7	378	0	385	0	7	378	1	0.83	59
1997	7	334	0	341	0	8	333	1	0.83	82
1998	8	273	0	281	0	6	275	1	0.83	88
1999	6	255	0	261	0	6	255	1	0.83	95
Lamb and mutton										
1995	11	287	64	362	6	8	348	1	0.89	76
1996	8	268	73	349	6	9	334	1	0.89	72
1997	9	260	83	352	5	14	333	1	0.89	88
1998	14	240	90	344	8	11	325	1	0.89	71
1999	11	223	85	319	8	11	300	1	0.89	73
Total red meat										
1995	1,004	43,677	2,831	47,512	2,614	930	43,968	122	--	--
1996	930	43,288	2,764	46,982	2,853	759	43,370	120	--	--
1997	759	43,358	3,059	47,176	3,185	895	43,096	118	--	--
1998	895	44,826	3,365	49,086	3,168	837	45,081	122	--	--
1999	837	43,789	3,455	48,081	3,283	857	43,941	118	--	--
<i>¢/lb</i>										
Broilers										
1995	458	24,827	1	25,287	3,894	560	20,832	69	0.869	56
1996	560	26,124	4	26,688	4,420	641	21,626	71	0.869	61
1997	641	27,041	5	27,687	4,664	607	22,416	73	0.869	59
1998	607	27,964	4	28,575	4,925	650	23,000	74	0.869	56-59
1999	650	29,141	4	29,795	5,025	650	24,120	77	0.869	55-59
Mature chickens										
1995	14	496	3	513	99	7	406	2	1.0	--
1996	7	491	0	498	265	6	228	1	1.0	--
1997	6	510	0	516	384	7	125	1	1.0	--
1998	7	519	0	526	397	7	122	1	1.0	--
1999	7	546	0	554	412	5	137	1	1.0	--
Turkeys										
1995	254	5,069	2	5,326	348	271	4,706	18	1.0	66
1996	271	5,401	1	5,673	438	328	4,906	19	1.0	66
1997	328	5,412	1	5,741	598	415	4,727	18	1.0	65
1998	415	5,448	1	5,864	557	425	4,881	18	1.0	59-62
1999	425	5,359	1	5,785	600	400	4,784	18	1.0	60-64
Total poultry										
1995	727	30,393	6	31,125	4,342	839	25,944	88	--	--
1996	839	32,015	5	32,859	5,123	975	26,760	90	--	--
1997	975	32,964	6	33,944	5,646	1,029	27,269	91	--	--
1998	1,029	33,931	5	34,965	5,879	1,082	28,003	93	--	--
1999	1,082	35,046	5	36,133	6,037	1,055	29,040	95	--	--
Red meat and poultry										
1995	1,731	74,070	2,837	78,637	6,956	1,769	69,912	210	--	--
1996	1,769	75,303	2,769	79,841	7,976	1,734	70,130	210	--	--
1997	1,734	76,322	3,065	81,120	8,831	1,924	70,364	209	--	--
1998	1,924	78,757	3,370	84,051	9,047	1,919	73,084	215	--	--
1999	1,919	78,835	3,460	84,214	9,320	1,912	72,981	213	--	--

-- = Not available. Values for the last 2 years are forecasts. 1. Total including farm production for red meat and federally inspected plus nonfederally inspected for poultry. 2. Retail-weight basis. 3. Red meat, carcass to retail conversion; poultry, ready-to-cook production to retail weight. 4. Beef: Medium #1, Nebraska Direct 1,100-1,300 lb.; pork: barrows and gilts, Iowa, Southern Minnesota; veal: farm price of calves; lamb and mutton; choice slaughter lambs, San Angelo; broilers: wholesale 12-city average; turkeys: wholesale NY 8-16 lb. young hens. 5. Carcass weight for red meats and certified ready-to-cook for poultry. 6. Beginning in 1989, veal trade is no longer reported separately. *Information contact: LaVerne Williams (202) 694-5190*

Table 11—U.S. Egg Supply & Use

	Beg. stocks	Production	Imports	Total supply	Exports	Hatching use	Ending stocks	Consumption		Primary market price*
								Total	Per capita	
								Million doz.		
1992	13.0	5,905.0	4.3	5,922.3	157.0	732.0	13.5	5,019.8	235.9	65.4
1993	13.5	6,005.8	4.7	6,023.9	158.9	769.6	10.7	5,084.6	236.4	72.5
1994	10.7	6,177.6	3.7	6,192.0	187.6	805.4	14.9	5,184.1	238.7	67.3
1995	14.9	6,215.6	4.1	6,234.6	208.9	847.2	11.2	5,167.3	235.6	72.9
1996	11.2	6,371.3	5.4	6,387.9	253.1	863.8	8.5	5,262.4	237.8	88.2
1997	8.5	6,459.8	6.9	6,475.2	227.8	894.8	7.4	5,345.2	239.4	81.2
1998	7.4	6,631.9	4.5	6,643.8	236.0	926.9	10.0	5,470.9	242.9	76.8
1999	10.0	6,765.0	4.0	6,779.0	243.0	970.0	10.0	5,556.0	244.5	72.5

Values for the last 2 years are forecasts. Values for previous year are preliminary. * Cartoned grade A large eggs, New York. *Information contact:* LaVerne Williams (202) 694-5190

Table 12—U.S. Milk Supply & Use¹

Production	Commercial			Imports	Total commercial supply	Commercial				CCC net removals		
	Farm use	Farm Marketings	Beg. stocks			CCC net removals	Ending stocks	Disappearance	All milk price ¹	Skim solids basis	Total solid basis ²	
	Billion lbs. (milkfat basis)							\$/cwt	Billion lbs.			
1991	147.7	2.0	145.7	5.1	2.6	153.4	10.4	4.5	138.6	12.24	3.9	6.5
1992	150.9	1.9	149.0	4.5	2.5	155.9	9.9	4.7	141.3	13.09	2.0	5.2
1993	150.6	1.8	148.8	4.7	2.8	156.2	6.7	4.6	145.0	12.80	3.9	5.0
1994	153.7	1.7	152.0	4.6	2.9	159.4	4.8	4.3	150.3	12.97	3.7	4.2
1995	155.4	1.6	153.9	4.3	2.9	161.1	2.1	4.1	154.9	12.74	4.4	3.5
1996	154.3	1.5	153.8	4.1	2.9	159.8	0.1	4.7	155.0	14.74	0.7	0.5
1997	156.6	1.4	155.2	4.7	2.7	162.6	1.1	4.9	156.6	13.34	3.7	2.7
1998	157.7	1.3	156.2	4.9	3.3	164.4	0.8	4.9	158.9	13.65	3.1	2.2
1999	159.4	1.2	158.2	4.9	3.3	166.4	0.8	4.9	160.6	13.65	2.6	1.9

Values for latest year are forecasts, values for the preceding year are preliminary. 1. Delivered to plants and dealers; does not reflect deductions. 2. Arbitrarily weighted average of milkfat basis (40 percent) and solids basis (60 percent). *Information contact:* Jim Miller (202) 694-5184

Table 13—Poultry & Eggs

	Annual			1997					1998	
	1995	1996	1997	Feb	Sep	Oct	Nov	Dec	Jan	Feb
Broilers										
Federally inspected slaughter certified (mil. lb.)	25,020.8	26,336.3	27,270.7	2,097.8	2,283.9	2,500.0	2,025.5	2,305.6	2,361.6	2,143.2
Wholesale price, 12-city (cents/lb.)	56.2	61.2	58.8	59.5	59.9	55.4	54.6	52.2	54.7	56.4
Price of grower feed (\$/ton) ¹	135.1	175.5	157.8	154.0	144.0	142.0	147.0	146.0	147.0	143.0
Broiler-feed price ratio ²	5.1	4.4	4.7	4.9	5.3	4.9	4.6	4.4	4.5	4.8
Stocks beginning of period (mil. lb.)	458.4	560.1	641.3	671.9	559.0	545.6	579.3	604.0	606.8	616.1
Broiler-type chicks hatched (mil.)	7,932.4	8,076.9	8,306.5	634.3	684.2	683.1	648.1	712.0	710.6	644.5
Turkeys										
Federally inspected slaughter certified (mil. lb.)	5,128.8	5,465.6	5,477.9	391.7	462.6	513.7	453.5	460.4	432.6	410.9
Wholesale price, Eastern U.S. 8-16 lb. young hens (cents/lb.)	66.4	66.5	64.9	57.8	67.9	67.3	70.1	62.2	55.6	54.0
Price of turkey grower feed (\$/ton) ¹	130.1	166.1	142.5	148.0	135.0	134.0	133.0	133.0	131.0	131.0
Turkey-feed price ratio ²	6.3	5.3	5.6	5.0	6.1	6.1	6.3	5.8	5.4	5.2
Stocks beginning of period (mil. lb.)	254.4	271.3	328.0	401.0	742.0	770.7	736.6	438.6	415.1	497.6
Poults placed in U.S. (mil.)	321.7	327.2	321.5	27.1	23.9	24.6	23.3	25.7	26.2	25.1
Eggs										
Farm production (mil.)	74,587	76,456	77,515	5,904	6,350	6,646	6,549	6,814	6,742	6,071
Average number of layers (mil.)	294	298	303	304	303	306	309	311	311	312
Rate of lay (eggs per layer on farms)	253.8	256.2	255.2	19.4	21.0	21.7	21.2	21.9	21.7	19.5
Cartoned price, New York, grade A large (cents/doz.) ³	72.9	88.2	81.2	82.0	82.4	77.0	97.4	90.3	83.2	72.4
Price of laying feed (\$/ton) ¹	149.7	184.4	159.8	153.0	150.0	151.0	141.0	143.0	124.0	156.0
Egg-feed price ratio ²	8.6	8.5	8.8	9.9	9.3	8.7	11.4	11.0	11.9	8.3
Stocks, first of month										
Frozen (mil. doz.)	14.8	10.5	7.7	8.5	8.4	8.3	8.3	7.8	7.4	9.1
Replacement chicks hatched (mil.)	397	407	422	35.8	37.2	35.3	27.8	35.9	37.2	34.6

1. Calculated from price ratios that were revised February 1995. 2. Pounds of feed equal in value to 1 dozen eggs or 1 lb. of broiler or turkey liveweight (revised February 1995). 3. Price of cartoned eggs to volume buyers for delivery to retailers. *Information contact:* LaVerne Williams (202) 694-5190

Table 14—Dairy

				1997					1998	
	1995	1996	1997	Feb	Sep	Oct	Nov	Dec	Jan	Feb
Milk—Basic Formula Price (\$/cwt) ¹	11.83	13.39	12.05	12.46	12.79	12.83	12.96	13.29	13.25	13.32
Wholesale prices										
Butter, grade A Chi. (cents/lb.)	75.6	100.3	107.1	98.4	101.6	135.3	148.8	120.1	109.2	130.1
Am. cheese, Wis. assembly pt. (cents/lb.)	132.8	149.1	132.4	132.2	141.4	142.4	143.8	146.1	144.5	144.7
Nonfat dry milk (cents/lb.) ²	108.6	122.2	110.0	114.9	107.1	106.9	107.1	107.4	105.9	105.2
USDA net removals										
Total (mil. lb.) ²	2,105.7	86.9	1,108.6	37.1	103.4	105.4	145.9	157.7	123.0	76.1
Butter (mil. lb.)	78.5	0.1	39.2	0.8	3.9	3.7	5.4	5.9	4.0	2.2
Am. cheese (mil. lb.)	6.1	4.6	11.3	1.0	0.4	1.2	0.8	0.5	0.7	0.7
Nonfat dry milk (Mil. lb.)	343.8	57.2	296.7	14.4	34.7	24.9	31.9	31.7	37.5	32.2
Milk										
Milk prod. 20 States (mil. lb.)	131,780	131,343	133,861	10,321	10,671	10,977	10,591	11,118	11,316	10,434
Milk per cow (lb.)	16,762	16,800	17,252	1,328	1,377	1,416	1,369	1,438	1,464	1,351
Number of milk cows (1,000)	7,862	7,818	7,759	7,774	7,752	7,750	7,737	7,732	7,730	7,726
U.S. milk production (mil. lb.) ⁴	155,424	154,259	156,602	12,141	12,423	12,818	12,362	12,973	13,260	12,221
Stocks, beginning ³										
Total (mil. lb.)	5,760	4,168	4,714	5,051	6,846	5,958	5,221	4,716	4,907	5,323
Commercial (mil. lb.)	4,263	4,099	4,704	5,042	6,814	5,939	5,205	4,697	4,889	5,306
Government (mil. lb.)	1,497	69	10	8	32	19	16	19	18	16
Imports, total (mil. lb.) ³	2,936	2,911	2,698	171	228	265	275	342	196	215
Commercial disappearance (mil. lb.) ³	154,843	154,985	156,629	11,976	13,309	13,596	12,886	12,848	12,803	11,924
Butter										
Production (mil. lb.)	1,264.5	1,174.5	1,151.2	108.6	79.3	83.3	89.1	106.0	113.5	102.7
Stocks, beginning (mil. lb.)	79.4	18.6	13.7	23.2	69.5	43.9	26.6	15.4	20.8	34.2
Commercial disappearance (mil. lb.)	1,186.3	1,179.8	1,107.9	95.4	101.0	96.8	95.0	94.9	97.6	91.4
American cheese										
Production (mil. lb.)	3,131.4	3,280.8	3,285.2	267.1	261.2	260.0	248.5	278.6	283.2	261.1
Stocks, beginning (mil. lb.)	310.4	307.0	379.9	384.0	461.0	434.3	415.1	405.9	410.8	412.2
Commercial disappearance (mil. lb.)	3,148.5	3,230.1	3,268.6	271.9	287.9	279.6	259.8	276.0	282.0	263.1
Other cheese										
Production (mil. lb.)	3,785.5	3,936.7	4,043.8	310.1	343.0	355.5	346.0	349.3	332.5	313.0
Stocks, beginning (mil. lb.)	126.8	105.3	107.3	117.7	122.8	109.6	90.2	68.9	70.0	81.7
Commercial disappearance (mil. lb.)	4,125.6	4,243.0	4,390.3	330.3	381.4	404.5	396.1	384.9	337.0	312.2
Nonfat dry milk										
Production (mil. lb.)	1,233.0	1,061.8	1,271.6	93.0	77.4	72.5	75.2	102.0	103.7	97.0
Stocks, beginning (mil. lb.)	131.2	85.0	71.4	75.8	160.0	141.9	129.1	122.1	124.9	130.1
Commercial disappearance (mil. lb.)	923.7	1,009.0	885.4	83.1	63.9	66.8	58.7	70.2	65.4	63.6
Frozen dessert										
Production (mil. gal.) ⁵	1,229.6	1,240.9	1,281.4	95.3	103.3	99.7	80.5	80.6	83.3	91.7
	Annual			1996			1997			1998
	1995	1996	1997	III	IV	I	II	III	IV	I
Milk production (mil. lb.)	155,424	154,259	156,602	37,642	37,946	38,961	40,683	38,805	38,153	39,206
Milk per cow (lb.)	16,433	16,479	16,915	4,026	4,071	4,192	4,384	4,195	4,144	4,269
No. of milk cows (1,000)	9,458	9,361	9,258	9,349	9,320	9,295	9,280	9,251	9,206	9,184
Milk-feed price ratio	1.63	1.60	1.54	1.64	1.67	1.53	1.48	1.47	1.71	1.73
Returns over concentrate costs (\$/cwt milk)	9.50	10.98	9.80	11.95	11.55	9.80	9.30	9.10	10.90	11.15

-- = Not available. Quarterly values for latest year are preliminary. 1. Manufacturing grade milk. 2. Prices paid f.o.b. Central States production area. 3. Milk equivalent, fat basis. 4. Monthly data ERS estimates. 5. Hard ice cream, ice milk, and hard sherbet. *Information contact: LaVerne Williams (202) 694-5190*

Table 15—Wool

	Annual			1996		1997				1998
	1995	1996	1997	IV	I	II	III	IV	I	
U.S. wool price (cents/lb.) ¹	258	193	238	191	196	244	255	258	209	
Imported wool price (cents/lb.) ²	249	196	206	191	196	210	213	204	192	
U.S. mill consumption, scoured										
Apparel wool (1,000 lb.)	129,299	129,525	130,386	23,092	33,124	33,830	30,638	32,794	--	
Carpet wool (1,000 lb.)	12,667	12,311	13,576	3,111	3,437	3,324	3,395	3,420	--	

-- = Not available. 1. Wool price delivered at U.S. mills, clean basis, Graded Territory 64's (20.60-22.04 microns) staple 2-3/4" and up. 2. Wool price, Charleston, SC warehouse, clean basis, Australian 60/62's, type 64A (24 micron). Duty since 1982 has been 10 cents. *Information contact: Mae Dean Johnson (202) 694-5299*

Table 16—Meat Animals

	Annual			1997			1998				
	1,995	1,996	1,997	Apr	Nov	Dec	Jan	Feb	Mar	Apr	
Cattle on feed (7 States, 1000+ head capacity)											
Number on feed (1,000 head) ¹	8,031	8,667	8,943	8,904	9,390	9,003	9,455	9,180	8,835	8,607	
Placed on feed (1,000 head)	20,034	19,564	20,765	1,296	1,826	1,423	1,492	1,250	1,421	1,358	
Marketings (1,000 head)	18,753	18,636	19,552	1,648	1,429	1,415	1,689	1,539	1,580	1,609	
Other disappearance (1,000 head)	674	652	701	68	69	68	78	56	69	61	
Market prices (\$/cwt)											
Slaughter cattle											
Choice steers, 1,100-1,300 lb.											
Texas	66.69	65.06	65.99	67.66	67.66	65.91	64.57	60.77	62.05	62.05	
Neb. direct	66.26	65.05	66.32	68.32	67.21	65.53	63.57	59.74	61.99	61.99	
Boning utility cows, Sioux Falls	35.58	30.33	34.27	37.72	32.20	34.50	38.14	38.5	38.19	38.19	
Feeder steers											
Medium no. 1, Oklahoma City											
600-650 lb.	70.49	61.31	81.34	81.57	80.62	83.28	81.54	83.14	85.65	85.65	
750-800 lb.	68.03	61.08	76.19	72.52	79.11	81.00	77.23	75.28	50.95	50.95	
Slaughter hogs											
Barrows and gilts, 230-250 lb.											
Iowa, S. Minn.	42.35	53.39	51.36	54.07	44.54	39.85	35.6	34.53	34.22	34.22	
5 markets	41.99	53.42	51.30	54.32	44.40	40.50	35.82	34.11	34.29	34.29	
Sows, 5 markets	32.62	44.61	44.51	46.23	36.69	34.08	27.52	28.49	28.17	28.17	
Slaughter sheep and lambs											
Lambs, Choice, San Angelo											
	75.86	85.27	87.95	98.00	80.33	83.52	74.38	74.31	94.04	94.04	
Ewes, Good, San Angelo											
	33.91	39.05	49.33	34.60	49.67	48.42	49.75	50.69	91.97	91.97	
Feeder lambs											
Choice, San Angelo	81.08	94.88	104.43	115.65	94.00	97.17	95.31	92	82.5	82.5	
Wholesale meat prices, Midwest											
Boxed beef cut-out value											
Choice, 700-800 lb.											
	106.09	102.01	102.75	103.56	103.74	100.43	99.16	94.57	94.04	97.61	
Select, 700-800 lb.											
	98.45	95.34	96.15	98.47	94.66	93.39	96.76	92.77	91.97	96.23	
Canner and cutter cow beef											
	68.67	58.18	64.50	68.32	59.67	62.13	62	65.64	64.08	65.6	
Pork cutout											
	--	--	--	--	--	--	54.66	54.52	53.41	54.32	
Pork loins, bone-in, 1/4" trim, 14-19 lb.											
	--	--	--	--	--	--	104.08	103.03	104.56	102.51	
Pork bellies, 12-14 lb.											
	--	--	--	--	--	--	48.39	45.89	42.28	54.65	
Hams, bone-in, trimmed, 20-27 lb.											
	--	--	--	--	--	--	46.35	48.88	46.41	42.82	
All fresh beef retail price	259.42	252.44	253.17	252.98	253.35	254.77	253.24	252.7	255.84	255.35	
Commercial slaughter (1,000 head) ²											
Cattle											
Steers	18274	17819	17554	1512	1259	1345	1450	1346	1380	1422	
Heifers	10399	10756	11538	950	864	873	974	894	997	970	
Cows	6281	7274	6563	535	584	609	568	462	470	484	
Bull and stags	686	728	696	61	53	50	48	45	47	51	
Calves	1430	1768	1574	351	122	145	128	113	127	109	
Sheep and lambs	4560	4184	3911	7727	314	349	310	309	356	384	
Hogs											
Barrows and gilts	91683	88224	88253	257	7433	8289	8271	7417	8152	7998	
Commercial production (mil. lb.)											
Beef	25,117	25,421	25,384	2,095	1,934	2,024	2,157	1,977	2,081	2,090	
Veal	307	368	323	28	24	26	24	21	23	20	
Lamb and mutton	284	265	257	22	20	23	21	21	26	25	
Pork	17,810	17,084	17,245	1,446	1,473	1,641	1,634	1,457	1,596	1,566	
	Annual			1996			1997			1998	
	1995	1996	1997	IV	I	II	III	IV	I	II	
Hogs and pigs (U.S.) ³											
Inventory (1,000 head) ¹											
Breeding (1,000 head) ¹	59,990	58,264	56,141	58,150	56,141	55,838	58,262	61,160	60,915	60,070	
Market (1,000 head) ¹	7,060	6,839	6,667	6,765	6,667	6,842	6,960	6,974	6,988	6,986	
Farrowings (1,000 head)	52,930	51,425	49,474	51,385	49,474	48,996	51,302	54,213	53,927	53,084	
Pig crop (1,000 head)	11,847	11,187	11,440	2,717	2,702	2,944	2,958	2,928	2,898	3,038	
	98,516	94,956	98,972	23,159	23,264	25,491	25,798	25,307	25,164	--	
Cattle on Feed, 7 States (1,000 head) ⁴											
Steers and Steer Calves	5,218	5,588	5410	4,656	5,410	5,417	4,615	5,147	5803	5245	
Heifers and Heifer Calves	2,785	3,005	3455	2,798	3,455	3,431	3,026	3,383	3615	3325	
Cows and Bulls	30	74	78	32	78	56	38	28	37	37	

-- = Not available. 1. Beginning of period. 2. Classes estimated. 3. Quarters are Dec. of preceding year to Feb. (I), Mar.-May (II), June-Aug. (III), and Sept.-Nov. (IV). 4. Beginning of period. The 7 States include AZ, CA, CO, IA, KS, NE, and TX. Information contact: Leland Southard (202) 501-8553

Crops & Products

Table 17—Supply & Utilization^{1,2}

	Area			Yield	Production	Total supply ⁴	Feed & residual	Other domestic use	Exports	Total use	Ending stocks	Farm price ⁵
	Set aside ³	Planted	Harvested									
	<i>Mil. Acres</i>	<i>Bu./acre</i>	<i>Mil. bu.</i>									
Wheat												
1994/95	5.2	70.3	61.8	37.6	2,321	2,981	344	942	1,188	2,475	507	3.45
1995/96	6.1	69.1	60.9	35.8	2,183	2,757	153	987	1,241	2,381	376	4.55
1996/97	--	75.6	62.9	36.3	2,285	2,753	314	995	1,001	2,310	444	4.30
1997/98*	--	71.0	63.6	39.7	2,527	3,060	250	1,010	1,035	2,295	766	3.40
1998/99*	--	67.0	60.5	38.9	2,356	3,211	300	1,020	1,125	2,445	766	3.05-3.45
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Rice⁶												
1994/95	0.3	3.4	3.3	5,964.0	197.8	230.9	--	6/ 100.7	98.9	199.6	31.3	6.78
1995/96	0.5	3.1	3.1	5,621.0	173.9	212.6	--	6/ 104.6	83.0	187.6	25.0	9.15
1996/97	--	2.8	2.8	6,121.0	171.3	206.3	--	6/ 100.7	78.4	179.1	27.2	9.96
1997/98*	--	3.1	3.0	5,896.0	178.9	215.4	--	6/ 106.9	84.0	190.9	24.5	9.60-9.80
1998/99*	--	3.1	3.1	5,980.0	183.0	217.2	--	6/ 108.9	83.0	191.9	25.3	9.20-10.20
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. cwt (rough equiv)</i>				<i>\$/cwt</i>
Corn												
1994/95	2.4	79.2	72.9	138.6	10,103	10,962	5,523	1,704	2,177	9,405	1,558	2.26
1995/96	7.7	71.2	65.0	113.5	7,374	8,948	4,682	1,612	2,228	8,522	426	3.24
1996/97	--	79.5	73.1	127.1	9,293	9,733	5,362	1,692	1,795	8,849	883	2.71
1997/98*	--	80.2	73.7	127.0	9,366	10,259	5,700	1,825	1,475	9,000	1,259	2.40-2.50
1998/99*	--	80.8	74.4	129.6	9,640	10,909	5,850	1,875	1,575	9,300	1,609	2.05-2.45
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Sorghum												
1994/95	1.6	9.8	8.9	72.8	649	697	400	3	223	625	72	2.13
1995/96	1.7	9.5	8.3	55.6	460	532	305	11	198	514	18	3.19
1996/97	--	13.2	11.9	67.5	803	821	529	40	205	774	47	2.34
1997/98*	--	10.1	9.4	69.5	653	701	425	35	200	660	41	2.15-2.25
1998/99*	--	9.0	8.0	68.5	545	586	300	35	200	535	51	1.90-2.30
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Barley												
1994/95	2.7	7.2	6.7	56.2	375	580	228	173	66	467	113	2.03
1995/96	2.9	6.7	6.3	57.3	360	513	179	172	62	413	100	2.89
1996/97	--	7.1	6.8	58.5	396	532	220	172	31	423	109	2.74
1997/98*	--	6.9	6.4	58.3	374	519	160	172	75	407	112	2.35
1998/99*	--	6.8	6.4	59.8	380	527	210	172	25	407	120	1.90-2.30
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Oats												
1994/95	0.6	6.6	4.0	57.1	229	428	234	92	1	327	101	1.22
1995/96	0.8	6.3	3.0	54.7	162	343	183	92	2	277	66	1.67
1996/97	--	4.7	2.7	57.8	155	319	155	95	3	252	67	1.96
1997/98*	--	5.2	2.9	60.5	176	353	175	95	2	272	81	1.60
1998/99*	--	5.2	3.1	58.9	180	361	175	95	2	272	89	1.05-1.45
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Soybeans⁷												
1994/95	--	60.1	57.3	32.6	1,871	2,170	7/ 96	1,276	589	1,961	209	6.40
1995/96	--	61.7	60.9	41.4	2,517	2,731	7/ 153	1,405	838	2,396	335	5.48
1996/97	--	64.2	63.4	37.6	2,382	2,575	7/ 126	1,436	882	2,443	131	7.35
1997/98*	--	70.9	69.9	39.0	2,727	2,865	7/ 160	1,550	915	2,625	240	6.45
1998/99*	--	72.0	70.9	39.5	2,800	3,046	7/ 136	1,575	925	2,636	410	4.75-5.75
								<i>Mil. lbs.</i>				<i>¢/lb.</i>
Soybean oil												
1994/95	--	--	--	--	13,951	15,574	--	12,941	1,529	14,471	1,103	27.10
1995/96	--	--	--	--	15,613	16,733	--	12,916	2,680	15,597	1,137	27.58
1996/97	--	--	--	--	15,752	17,821	--	14,256	2,045	16,300	1,520	22.50
1997/98*	--	--	--	--	17,365	18,955	--	14,800	2,900	17,700	1,255	27.25
1998/99*	--	--	--	--	17,705	19,030	--	14,950	2,900	17,850	1,180	27.00-30.00
								<i>1,000 tons</i>				<i>\$/ton⁸</i>
Soybean meal												
1994/95	--	--	--	--	30,514	30,788	--	25,283	5,356	30,639	150	192.9
1995/96	--	--	--	--	33,270	33,483	--	26,542	6,717	33,260	223	162.6
1996/97	--	--	--	--	34,210	34,524	--	27,320	6,994	34,314	210	270.9
1997/98*	--	--	--	--	36,630	36,900	--	28,200	8,450	36,650	250	185.0
1998/99*	--	--	--	--	37,435	37,750	--	29,000	8,500	37,500	250	145-160

See footnotes at end of table, next page

Table 17—Supply & Utilization (continued)

	Area			Yield	Production	Total Supply ⁴	Feed & residual	Other domestic use	Exports	Total Use	Ending stocks	Farm price ⁵
	Set aside ³	Planted	Harvested									
	<i>Mil. Acres</i>	<i>Mil. Acres</i>	<i>Mil. Acres</i>									
				<i>Lb./acre</i>								<i>c/lb.</i>
Cotton ⁹												
1994/95	1.7	13.7	13.3	708	19.7	23.2	--	11.2	9.4	20.6	2.7	72.0
1995/96	0.3	16.9	16.0	536	17.9	21.0	--	10.7	7.7	18.3	2.6	75.4
1996/97	--	14.6	12.9	707	18.9	22.0	--	11.1	6.9	18.1	4.0	69.3
1997/98*	--	13.8	13.3	680	18.8	22.8	--	11.5	7.5	19.0	3.8	64.9
1998/99*	--	13.2	12.3	650	16.7	20.5	--	11.5	6.0	17.5	3.0	--

-- = Not available or not applicable. *May 12, 1998 Supply and Demand Estimates. 1. Marketing year beginning June 1 for wheat, barley, and oats, August 1 for cotton and rice, September 1 for soybeans, corn, and sorghum, October 1 for soybean meal and soybean oil. 2. Conversion factors: Hectare (ha.) = 2.471 acres, 1 metric ton = 2,204.622 pounds, 36.7437 bushels of wheat or soybeans, 39.3679 bushels of corn or sorghum, 45.9296 bushels of barley, 68.8944 bushels of oats, 22.046 cwt of rice, and 4.59 480-pound bales of cotton. 3. Includes diversion, acreage reduction, 50-92, & 0-92 programs. 0/92 & 50/92 set-aside includes idled acreage and acreage planted to minor oilseeds, sesame, and crambe. 4. Includes imports. 5. Marketing-year weighted average price received by farmers. Does not include an allowance for loans outstanding and government purchases. 6. Residual included in domestic use. 7. Includes seed. 8. Simple average of 48 percent, Decatur. 9. Upland and extra-long staple. Stocks estimates based on Census Bureau data, resulting in an unaccounted difference between supply and use estimates and changes in ending stocks. *Information contacts: Wheat, rice, feed grains, Jenny Gonzales (202) 694-5296; soybeans, soybean products, and cotton, Mae Dean Johnson (202) 694-5299*

Table 18—Cash Prices, Selected U.S. Commodities

	Marketing year ¹			1997				1998		
	1994/95	1995/96	1996/97	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Wheat, no. 1 HRW, Kansas City (\$/bu.) ²	7.50	5.49	4.88	4.58	3.88	3.87	3.72	3.61	3.64	3.61
Wheat, DNS, Minneapolis (\$/bu.) ³	4.26	5.72	4.97	4.62	4.35	4.42	4.27	4.12	4.15	4.26
Rice, S.W. La. (\$/cwt) ⁴	14.55	18.90	20.34	20.44	18.94	19.25	19.15	19.00	19.00	18.57
Corn, no. 2 yellow, 30-day, Chicago (\$/bu.)	2.43	3.97	2.84	3.05	2.76	2.77	2.70	2.73	2.72	2.71
Sorghum, no. 2 yellow, Kansas City (\$/cwt)	4.10	6.66	4.54	4.88	4.36	4.30	4.26	4.33	4.36	4.40
Barley, feed, Duluth (\$/bu.)	2.02	2.67	2.32	2.22	2.05	1.98	1.66	1.58	1.56	1.51
Barley, malting Minneapolis (\$/bu.)	2.75	3.69	3.18	--	2.74	--	--	--	--	--
U.S. cotton price, SLM, 1-1/16 in. (¢/lb.) ⁵	88.10	83.00	71.60	71.12	70.80	69.50	68.90	64.60	63.66	67.04
Northern Europe prices cotton index (¢/lb.) ⁶	92.70	85.60	78.70	80.26	79.50	77.60	77.10	74.70	68.68	68.41
U.S. M 1-3/32 in. (¢/lb.) ⁷	99.70	94.70	82.90	82.63	82.50	80.50	79.80	77.30	74.50	75.38
Soybeans, no. 1 yellow, 30-day Chicago (\$/bu)	5.48	6.72	7.38	8.33	6.49	6.75	7.18	6.92	6.75	6.55
Soybean oil, crude, Decatur (¢/lb.)	27.60	24.75	22.50	23.29	22.88	24.31	25.73	25.08	26.51	27.09
Soybean meal, 48% protein, Decatur (\$/ton)	162.55	236.00	270.90	280.50	278.30	229.30	245.30	222.50	192.75	174.20

-- = No quotes. 1. Beginning June 1 for wheat and barley; Aug. 1 for rice and cotton; September 1 for corn, sorghum, and soybeans; October 1 for soybean meal and oil. 2. Ordinary protein. 3. 14 percent protein. 4. Long grain, milled basis. 5. Average spot market. 6. Liverpool Cotlook "A" Index; average of 5 lowest prices of 13 selected growths. 7. Cotton, Memphis territory growths. *Information contacts: Wheat, rice, and feed, Jenny Gonzales (202) 694-5296; soybeans, soybean products, and cotton, Mae Dean Johnson (202) 694-5299*

Table 19—Farm Programs, Price Supports, Participation, & Payment Rates

	Target price	Payment rates			Effective base acres ²	Program ³	Flexibility contract payment rate	Acres under contract	Contract payment yields	Participation rate ⁴
		Basic loan rate	Findley or announced loan rate ¹	Total deficiency						
		\$/bu.			Mil. acres	Percent of base	\$/bu.	Mil. acres	Bu./cwt	Percent
Wheat										
1994/95	4.00	2.72	2.58	0.61	78.10	0/0/0	--	--	--	87
1995/96	4.00	2.69	2.58	0.00	77.70	0/0/0	--	--	--	85
1996/97	--	--	2.58	--	--	--	0.874	76.7	34.70	99
1997/98	--	--	2.58	--	--	--	0.631	76.7	34.70	--
1998/99 ⁸	--	--	2.58	--	--	--	0.660	76.7	34.70	--
Rice										
1994/95	10.71	6.50	5.88 ⁵	3.79	4.20	0/0/0	--	--	--	95
1995/96	10.71	6.50	6.50 ⁵	*3.22 ⁹	4.20	5/0/0	--	--	--	95
1996/97	--	6.50	--	--	--	--	2.766	4.2	48.27	99
1997/98	--	6.50	--	--	--	--	2.710	4.2	48.17	--
1998/99 ⁸	--	6.50	--	--	--	--	2.930	4.2	48.17	--
Corn										
1994/95	2.75	1.99	1.89	0.57	81.50	0/0/0	--	--	--	81
1995/96	2.75	1.94	1.89	0.00	81.80	7.5/0/0	--	--	--	82
1996/97	--	--	1.89	--	--	--	0.251	80.7	102.90	98
1997/98	--	--	1.89	--	--	--	0.486	80.9	102.80	--
1998/99 ⁸	--	--	1.89	--	--	--	0.370	80.9	102.60	--
Sorghum										
1994/95	2.61	1.89	1.80	0.59	13.50	0/0/0	--	--	--	81
1995/96	2.61	1.84	1.80	0.00	13.30	0/0/0	--	--	--	77
1996/97	--	--	1.81	--	--	--	0.323	13.1	57.30	99
1997/98	--	--	1.76	--	--	--	0.544	13.1	57.30	--
1998/99 ⁸	--	--	1.74	--	--	--	0.450	13.1	56.50	--
Barley										
1994/95	2.36	1.62	1.54	0.52	10.70	0/0/0	--	--	--	84
1995/96	2.36	1.58	1.54	0.00	10.70	0/0/0	--	--	--	82
1996/97	--	--	1.55	--	--	--	0.332	10.5	47.30	99
1997/98	--	--	1.57	--	--	--	0.277	10.5	47.20	--
1998/99 ⁸	--	--	1.56	--	--	--	0.280	10.5	46.70	--
Oats										
1994/95	1.45	1.02	0.97	0.19	6.80	0/0/0	--	--	--	40
1995/96	1.45	1.00	0.97	0.00	6.50	0/0/0	--	--	--	44
1996/97	--	--	1.03	--	--	--	0.033	6.2	50.80	97
1997/98	--	--	1.11	--	--	--	0.031	6.2	50.80	--
1998/99 ⁸	--	--	1.11	--	--	--	0.030	6.2	50.60	--
Soybeans⁶										
1994/95	--	--	4.92	--	--	--	--	--	--	--
1995/96	--	--	4.92	--	--	--	--	--	--	--
1996/97	--	--	4.97	--	--	--	--	--	--	--
1997/98	--	--	5.26	--	--	--	--	--	--	--
1998/99	--	--	5.26	--	--	--	--	--	--	--
Upland cotton										
1994/95	72.90	50.00	50.00 ⁷	4.60	15.30	11/0/0	--	--	--	89
1995/96	72.90	51.92	51.92 ⁷	*0.0 ⁹	15.50	0/0/0	--	--	--	79
1996/97	--	51.92	--	--	--	--	8.882	16.2	610.00	99
1997/98	--	51.92	--	--	--	--	7.625	16.2	608.00	--
1998/99 ⁸	--	51.92	--	--	--	--	7.900	16.2	608.00	--

-- = Not available. 1. There are no Findley loan rates for rice or cotton. See footnotes 5 and 7. 2. Prior to 1996, national effective crop acreage base as determined by FSA. Net of CRP. 3. Program requirements for participating producers (mandatory acreage reduction program/mandatory paid land diversion/optional paid land diversion). Acres idled must be devoted to a conserving use to receive program benefits. 4. Percentage of effective base enrolled in acreage reduction programs. Starting in 1996, participation rate is the percent of eligible acres that entered production flexibility contracts. 5. A marketing loan has been in effect for rice since 1985/86. Loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly). Loans cannot be repaid at less than a specified fraction of the loan rate. Data refer to marketing-year average loan repayment rates. Beginning with the 1996 crop, loans are repaid at the lower of the loan rate plus accumulated interest or the adjusted world price. 6. There are no target prices, base acres, acreage reduction programs or deficiency payment rates for soybeans. 7. A marketing loan has been in effect for cotton since 1986/87. In 1987/88 and after, loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly; Plan B). Starting in 1991/92, loans cannot be repaid at less than 70 percent of the loan rate. Data refer to annual average loan repayment rates. Beginning with the 1996 crop, loans are repaid at the lower of the loan rate plus accumulated interest or the adjusted world price. 8. Estimated payment rates and acres under contract. 9. Guaranteed payment rates for producers in the 50/85/92 program were \$0.034/lb. for upland cotton and \$4.21/cwt. for rice. Note: The 1996 Act replaced target prices and deficiency payments with fixed annual payments to producers. Information contact: Brenda Chewing, Farm Service Agency, (202)720-8838.

Table 20—Fruit

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Citrus¹										
Production (1,000 tons)	13,186	10,860	11,285	12,452	15,274	14,561	15,799	16,009	17,468	18,160
Per capita consumpt. (lb.) ²	23.6	21.4	19.1	24.4	26.0	25.0	24.1	24.9	27.6	29.3
Noncitrus³										
Production (1,000 tons)	16,345	15,640	15,740	17,124	16,563	17,341	16,356	16,117	17,656	--
Per capita consumpt. (lb.) ²	72.3	70.7	70.6	74.5	73.1	75.6	73.6	74.1	73.5	--
	1997					1998				
	Apr	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Grower prices										
Apples (cents/pound) ⁴	15.6	19.2	24.2	24.0	22.1	23.7	22.3	21.6	21.3	19.2
Pears (cents/pound) ⁴	22.7	16.5	18.0	16.7	16.5	14.4	12.7	13.0	12.2	14.6
Oranges (\$/box) ⁵	4.65	6.93	6.95	3.69	2.15	2.53	2.58	3.53	4.75	5.82
Grapefruit (\$/box) ⁵	1.16	5.78	4.18	4.15	2.49	2.57	1.79	1.61	1.03	1.36
Stocks, ending										
Fresh apples (mil. lb.)	1,746	85	2,968	5,701	5,165	4,423	3,729	2,841	2,277	1,626
Fresh pears (mil. lb.)	43	117	616	585	446	337	273	212	125	61
Frozen fruits (mil. lb.)	700	1,029	1,051	1,440	1,356	1,233	1,128	1,009	882	806
Frozen conc.orange juice (mil. single-strength gallons)	814	641	526	466	496	614	794	828	828	1,010

-- = Not available. 1. Year shown is when harvest concluded. 2. Fresh per capita consumption. 3. Calendar year. 4. Fresh use. 5. U.S. equivalent on-tree returns. *Information contact: Susan Pollack (202) 694-5251*

Table 21—Vegetables

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Production 1/										
Total vegetables (1,000 cwt)	467,915	543,435	562,938	565,754	677,975	675,793	762,934	742,595	759,347	752,266
Fresh (1,000 cwt) 2/ 4/	240,249	254,418	254,039	242,733	393,249	377,698	396,671	391,699	408,823	428,171
Processed (tons) 3/ 4/	11,383,320	14,450,860	15,444,970	16,151,030	14,236,320	14,904,750	18,313,150	17,544,780	17,526,190	16,204,740
Mushrooms (1,000 cwt) 5/	667,759	714,992	749,151	746,832	776,357	750,799	782,340	777,870	776,677	--
Potatoes (1,000 cwt)	356,438	370,444	402,110	417,622	425,367	428,693	467,054	443,606	498,633	459,912
Sweetpotatoes (1,000 cwt)	10,945	11,358	12,594	11,203	12,005	11,053	13,395	12,906	13,456	13,025
Dry edible beans (1,000 cwt)	19,253	23,729	32,379	33,765	22,615	21,913	29,028	30,812	27,960	29,156
	1997					1998				
	Apr	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr
Shipments (1,000 cwt)										
Fresh	30,888	16,857	14,732	19,060	18,525	16,843	23,713	18,723	20,292	28,362
Iceberg lettuce	4,123	3,225	3,195	3,417	3,144	2,584	4,089	3,233	3,094	4,125
Tomatoes, all	4,965	2,648	2,356	3,367	2,737	3,196	4,189	3,057	3,647	4,767
Dry-bulb onions	4,020	3,162	3,437	4,172	3,270	2,997	4,075	3,436	2,753	4,009
Others 6/	17,780	7,822	5,744	8,104	9,374	8,066	11,360	8,997	10,798	15,461
Potatoes, all	23,489	8,352	9,589	13,328	12,180	11,925	16,328	11,870	15,619	23,416
Sweetpotatoes	211	127	152	375	636	172	146	180	252	373

-- = Not available. 1. Calendar year except mushrooms. 2. Includes fresh production of asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, honeydews, onions, & tomatoes through 1991. 3. Includes processing production of snap beans, sweet corn, green peas, tomatoes, cucumbers (for pickles), asparagus, broccoli, carrots, and cauliflower. 4. Data after 1991 not comparable to previous years because commodity estimates reinstated in 1992 are included. 5. Fresh and processing agaricus mushrooms only. Excludes specialty varieties. Crop year July 1- June 30. 6. Includes snap beans, broccoli, and cabbage, cauliflower, celery, sweet corn, cucumbers, eggplant, bell peppers, honeydews, and watermelons. *Information contact: Gary Lucier (202)694-5253*

Table 22—Other Commodities

	Annual			1996			1997			1998
	1995	1996	1997	III	IV	I	II	III	IV	I
Sugar										
Production ¹	7,978	7,268	7,418	694	3,977	2,129	694	570	3,874	2,075
Deliveries ¹	9,451	9,633	9,764	2,585	2,405	2,215	2,390	2,557	2,471	2,215
Stocks, ending ¹	2,908	3,195	3,376	1,241	3,139	3,285	2,285	1,492	2,908	3,901
Coffee										
Composite green price N.Y. (¢/lb.)	142.18	109.35	146.49	136.95	116.31	118.16	117.30	103.13	98.82	134.80
Imports, green bean equiv. (mil. lbs.) ²	2,182	2,494	--	--	--	--	--	--	--	--
	Annual			1997			1998			
	1995	1996	1997	Apr	Nov	Dec	Jan	Feb	Mar	Apr
Tobacco										
Avg. price to grower ³										
Flue-cured (\$/lb.)	1.79	1.83	1.73	--	1.76	0.00	--	--	--	--
Burley (\$/lb.)	1.85	1.92	1.91	--	1.91	1.92	1.89	1.80	1.76	1.70
Domestic taxable removals										
Cigarettes (bil.)	490.3	486.0	471.4	37.8	35.3	42.2	35.9	--	--	--
Large cigars (mil.) ⁴	2,561.7	3,166.4	3,552.9	276.3	323.4	298.2	231.9	--	--	--

-- = Not available. 1. 1,000 short tons, raw value. Quarterly data shown at end of each quarter. 2. Net imports of green and processed coffee. 3. Crop year July-June for flue-cured, October-September for burley. 4. Includes imports of large cigars. *Information contacts: Sugar: Fannye Jolly (202) 694-5249; tobacco, Tom Capehart (202) 694-5245*

World Agriculture

Table 23—World Supply & Utilization of Major Crops, Livestock & Products

	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97 F	1997/98 F
	<i>Million units</i>									
Wheat										
Area (hectares)	217.4	225.8	231.4	222.5	223.2	222.4	215.2	219.5	230.7	229.3
Production (metric tons)	495.0	533.2	588.0	543.0	562.3	559.3	524.6	537.5	582.4	609.8
Exports (metric tons) ¹	104.6	103.8	100.7	110.8	112.2	100.2	98.2	95.5	97.7	96.1
Consumption (metric tons) ²	524.3	532.7	561.9	555.6	550.3	562.3	548.1	550.2	577.6	585.2
Ending stocks (metric tons) ³	118.4	118.9	145.1	132.5	144.6	141.6	118.0	105.3	110.1	134.7
Coarse grains										
Area (hectares)	324.2	321.8	316.2	321.8	323.8	317.6	323.4	313.7	322.4	315.2
Production (metric tons)	722.9	793.5	828.6	810.3	871.8	799.5	873.6	801.9	908.1	898.9
Exports (metric tons) ¹	98.0	104.7	89.1	95.9	92.3	85.8	97.5	88.9	93.2	87.6
Consumption (metric tons) ²	788.1	817.5	817.0	809.8	843.9	838.8	861.1	842.5	881.5	897.3
Ending stocks (metric tons) ³	147.2	123.2	134.8	135.4	163.1	123.8	136.3	95.7	122.3	123.9
Rice, milled										
Area (hectares)	146.1	146.5	146.6	147.3	146.7	145.5	147.9	148.0	149.0	148.7
Production (metric tons)	331.4	343.8	352.0	354.7	355.7	355.5	364.5	371.2	379.9	381.4
Exports (metric tons) ¹	13.9	11.7	12.1	14.1	14.9	16.4	21.0	19.6	18.9	21.5
Consumption (metric tons) ²	327.3	338.4	347.4	356.3	357.8	358.7	367.1	371.1	377.4	379.3
Ending stocks (metric tons) ³	48.8	54.3	58.9	57.2	55.0	51.9	49.3	49.4	51.9	54.0
Total grains										
Area (hectares)	687.7	694.1	694.2	691.6	693.7	685.5	686.5	681.2	702.1	693.2
Production (metric tons)	1,549.3	1,670.5	1,768.6	1,708.0	1,789.8	1,714.3	1,762.7	1,710.6	1,870.4	1,890.1
Exports (metric tons) ¹	216.5	220.2	201.9	220.8	219.4	202.4	216.7	204.0	209.8	207.2
Consumption (metric tons) ²	1,639.7	1,688.6	1,726.3	1,721.7	175.2	1,759.8	1,776.3	1,763.8	1,836.5	1,861.8
Ending stocks (metric tons) ³	314.4	296.4	338.8	325.1	362.7	317.3	303.6	250.4	284.3	312.6
Oilseeds										
Crush (metric tons)	164.5	171.7	176.7	185.1	184.4	190.1	208.6	217.8	219.3	227.1
Production (metric tons)	201.6	212.4	215.7	224.3	227.5	229.4	262.9	259.7	261.4	282.8
Exports (metric tons)	31.5	35.6	33.4	37.6	38.2	38.7	44.1	44.3	48.7	50.8
Ending stocks (metric tons)	22.1	23.7	23.4	21.9	23.6	20.3	27.2	22.2	16.9	22.9
Meals										
Production (metric tons)	111.1	116.8	119.3	125.2	125.2	131.7	142.3	147.5	149.5	155.3
Exports (metric tons)	37.4	39.8	40.7	42.2	40.8	44.9	46.7	49.8	50.1	51.4
Oils										
Production (metric tons)	53.3	57.1	58.1	60.6	61.1	63.7	69.7	73.3	75.2	77.1
Exports (metric tons)	18.1	20.4	20.5	21.3	21.3	24.3	27.1	25.8	28.1	28.5
Cotton										
Area (hectares)	33.8	31.6	33.2	34.8	32.6	30.7	32.2	35.9	33.8	33.7
Production (bales)	84.4	79.7	87.1	95.7	82.5	76.7	85.6	93.0	89.2	89.2
Exports (bales)	33.4	31.3	29.8	28.2	25.6	26.7	28.4	27.9	26.5	26.4
Consumption (bales)	85.2	86.9	85.6	86.0	85.8	85.5	85.6	87.0	88.6	88.2
Ending stocks (bales)	30.8	24.8	26.9	37.0	34.4	26.3	28.3	33.8	36.3	37.5
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Red meat⁴										
Production (metric tons)	112.3	116.9	117.7	117.3	119.3	124.6	130.2	135.5	137.4	140.1
Consumption (metric tons)	110.9	114.8	116.1	115.7	118.3	123.5	128.7	132.8	135.1	138.9
Exports (metric tons) ¹	8.2	7.5	7.5	7.4	7.4	8.1	8.2	8.5	8.6	8.5
Poultry⁴										
Production (metric tons)	33.1	37.6	39.6	38.0	40.5	43.9	47.7	50.5	52.7	54.8
Consumption (metric tons)	32.6	36.5	38.4	37.0	39.4	42.5	46.2	48.8	50.8	53.0
Exports (metric tons) ¹	1.7	2.4	2.8	2.4	2.8	3.7	4.6	5.3	5.7	5.9
Dairy										
Milk production (metric tons) ⁵	387.4	395.0	377.6	378.4	377.6	378.4	380.8	379.8	381.2	383.4

Values in the last column are forecast. 1. Excludes intra-EU trade but includes intra-FSU trade. 2. Where stocks data are not available, consumption includes stock changes. 3. Stocks data are based on differing marketing years and do not represent levels at a given date. Data not available for not available for all countries. 4. Calendar year data. 1990 data correspond with 1989/90, etc. 5. Data prior to 1989 no longer comparable.

Information contacts: Crops, Ed Allen (202) 694-5288; red meat and poultry, Shayle Shagam (202) 694-5186; dairy, LaVerne Williams (202) 694-5190

U.S. Agricultural Trade

Table 24—Prices of Principal U.S. Agricultural Trade Products

	Annual			1997				1998		
	1995	1996	1997	Mar	Oct	Nov	Dec	Jan	Feb	Mar
Export Commodities										
Wheat, f.o.b. vessel, Gulf ports (\$/bu.)	4.82	5.63	4.35	4.82	4.16	4.09	3.95	3.78	3.81	3.79
Corn, f.o.b. vessel, Gulf ports (\$/bu.)	3.13	4.17	2.98	3.24	3.05	2.99	2.90	2.91	2.89	2.90
Grain sorghum, f.o.b. vessel, Gulf ports (\$/bu.)	3.13	3.90	2.89	3.14	2.92	2.90	2.85	2.88	2.87	2.83
Soybeans, f.o.b. vessel, Gulf ports (\$/bu.)	6.50	7.88	7.94	8.60	7.15	7.48	7.23	7.00	7.03	6.83
Soybean oil, Decatur (cents/lb.)	26.75	23.75	23.33	23.29	24.31	25.73	25.08	25.09	26.51	27.09
Soybean meal, Decatur, (\$/ton)	173.70	246.67	266.70	280.53	229.28	245.34	225.52	202.84	192.75	174.20
Cotton, 7-market avg. spot (cents/lb.)	93.45	77.93	69.62	71.13	69.46	65.35	64.57	62.86	63.66	67.04
Tobacco, ag. price at auction (cents/lb.)	178.79	183.20	182.74	189.98	178.48	184.46	192.05	192.05	195.96	177.45
Rice, f.o.b., mill, Houston (\$/cwt)	16.68	19.64	20.88	21.75	19.75	19.75	19.75	19.75	19.75	19.05
Inedible tallow, Chicago (cents/lb.)	19.22	20.13	20.75	19.35	22.13	22.88	22.60	18.20	16.88	17.53
Import commodities										
Coffee, N.Y. spot (\$/lb.)	1.45	1.29	2.05	2.19	1.67	1.60	1.76	1.76	1.86	1.62
Rubber, N.Y. spot (cents/lb.)	82.52	72.88	55.40	63.53	51.35	48.14	40.61	40.21	43.96	41.70
Cocoa beans, N.Y. (\$/lb.)	0.61	0.62	0.69	0.65	0.76	0.73	0.76	0.73	0.71	0.74

Information contact: Mary Teymourian (202) 694-5284, or e-mail maryt@econ.ag.gov

Table 25—Trade Balance

	Calendar Year			1997				1998		
	1996	1997	1998 F	Mar	Oct	Nov	Dec	Jan	Feb	Mar
<i>\$ million</i>										
Exports										
Agricultural	60,445	57,245	56,000	4,984	5,534	5,481	5,243	4,809	4,727	4,733
Nonagricultural	521,692	585,977	--	51,613	52,322	49,288	50,779	46,726	47,035	53,299
Total ²	582,137	643,222	--	56,597	57,856	54,769	56,022	51,535	51,762	58,032
Imports										
Agricultural	33,643	36,289	38,000	3,453	3,052	2,840	3,262	3,197	3,107	3,453
Nonagricultural	756,827	828,412	--	64,447	77,905	68,044	71,032	67,198	65,369	74,105
Total ³	790,470	864,701	--	67,900	80,957	70,884	74,294	70,395	68,476	77,558
Trade Balance										
Agricultural	26,802	20,956	18,000	1,531	2,482	2,641	1,981	1,612	1,620	1,280
Nonagricultural	-235,135	-242,435	--	-12,834	-25,583	-18,756	-20,253	-20,472	-18,334	-20,806
Total	-208,333	-221,479	--	-11,303	-23,101	-16,115	-18,272	-18,860	-16,714	-19,526

F = forecast. -- = Not available. 1. Forecasts based on fiscal year (Oct. 1-Sep. 30). 2. Domestic exports including Department of Defense shipments (F.A.S. Value). 3. Imports for consumption (customs value). Information contact: Mary Fant (202) 694-5272

Table 26—Indexes of Real Trade-Weighted Dollar Exchange Rates¹

	Annual			1997				1998		
	1995	1996	1997	Mar	Oct P	Nov P	Dec P	Jan P	Feb P	Mar P
	<i>1990=100</i>									
Total U.S. trade	96.2	100.8	111.9	111.5	112.8	111.9	114.5	116.9	116.3	116.8
Agricultural trade										
U.S. markets	97.3	101.0	106.8	107.0	106.9	109.8	113.9	116.1	114.7	114.6
U.S. competitors	97.4	98.7	108.2	105.9	110.6	109.7	113.1	117.2	116.4	117.3
High-valued products										
U.S. markets	95.2	100.4	104.9	105.7	104.6	107.3	109.9	111.1	109.8	109.7
U.S. competitors	98.3	100.1	111.0	109.0	112.7	111.5	114.2	117.0	116.9	117.7
Corn										
U.S. markets	89.1	96.4	103.1	103.6	103.2	107.4	112.1	114.2	112.1	112.2
U.S. competitors	88.8	90.1	97.4	95.7	98.7	97.8	99.6	101.5	101.4	102.0
Soybeans										
U.S. markets	91.1	96.0	105.0	104.3	105.8	108.0	112.7	116.4	114.9	115.1
U.S. competitors	81.3	80.8	82.4	82.0	83.2	83.3	83.7	84.3	84.2	84.4
Wheat										
U.S. markets	100.4	100.7	104.4	104.1	105.3	107.1	111.3	113.8	112.2	112.4
U.S. competitors	100.8	102.1	109.8	107.7	111.3	111.5	113.8	115.6	114.9	115.0
Vegetables										
U.S. markets	102.2	105.6	109.4	109.2	109.8	112.5	114.9	116.3	115.2	114.8
U.S. competitors	99.1	100.5	110.9	109.0	112.7	111.7	114.5	117.8	118.3	119.3
Red meats										
U.S. markets	84.8	93.3	99.8	101.5	99.0	103.0	107.3	108.4	106.6	107.4
U.S. competitors	96.3	98.0	107.9	105.7	109.7	108.9	111.7	114.2	113.6	114.1
Fruits & fruit juices										
U.S. markets	96.2	101.3	106.6	106.8	106.9	109.4	111.7	113.1	111.9	111.7
U.S. competitors	120.1	120.2	131.3	129.0	133.3	132.7	135.8	139.1	139.4	140.9
Cotton										
U.S. markets	93.6	95.5	102.9	100.2	105.6	108.5	121.0	133.3	128.9	130.7
U.S. competitors	104.6	101.6	102.9	102.2	103.1	103.3	105.0	106.2	105.6	106.0
Poultry										
U.S. markets	107.3	102.8	102.6	104.0	101.9	103.8	104.4	104.8	104.2	104.1
U.S. competitors	93.9	95.7	106.2	103.4	109.0	108.0	111.2	115.0	115.6	116.9

P = preliminary. 1. Real indexes adjust nominal exchange rates to avoid the distortion caused by different levels of inflation among countries. A higher value means the dollar has appreciated. "Total U.S. trade" Index uses the Federal Reserve Board Index of trade-weighted value of the U.S. dollar against 10 major countries. Weights are based on relative importance of major U.S. customers and competitors in world markets during 1990-94. Indexes are subject to revision for up to one year due to delayed reporting by some countries. High-value products conform to FAS's definition for consumer-oriented agricultural products. *Information contact: Tim Baxter (202) 694-5318 or Andy Jerado (202) 694-5323*

Table 27—U.S. Agricultural Exports & Imports

	Calendar year			Mar		Calendar year			Mar	
	1996	1997	1998F	1997	1998	1996	1997	1998F	1997	1998
	1,000 units					\$ million				
EXPORTS										
Animals, live (no.) ¹	595	1,802	--	120	100	427	566	--	44	28
Meats and preps., excl. poultry (mt) ²	1,849	1,924	1,400	137	186	4,590	4,597	4,000	348	399
Dairy products (mt) ¹	109	125	--	10	17	727	932	900	74	92
Poultry meats (mt)	2,388	2,585	2,600	203	215	2,483	2,423	--	198	183
Fats, oils, and greases (mt)	1,257	1,089	900	83	136	614	562	--	46	64
Hides and skins incl. furskins	--	--	--	--	--	1,675	1,651	1,500	149	151
Cattle hides, whole (no.) ¹	21,410	20,113	--	1,639	2,058	1,176	1,187	--	100	103
Mink pelts (no.) ¹	3,441	3,763	--	303	622	110	97	--	9	19
Grains and feeds (mt) ³	106,131	91,061	--	7,840	7,223	20,863	15,361	15,300	1,338	1,209
Wheat (mt) ⁴	30,946	25,264	28,000	1,502	1,720	6,265	4,095	4,400	250	268
Wheat flour (mt)	491	508	500	49	25	147	138	--	13	7
Rice (mt)	2,839	2,508	2,700	213	340	1,029	932	1,000	74	120
Feed grains, incl. products (mt) ⁵	58,687	49,032	47,900	4,934	4,049	9,575	6,211	5,600	651	492
Feeds and fodders (mt)	11,842	12,352	12,700	1,012	960	2,646	2,669	2,600	231	211
Other grain products (mt)	1,325	1,397	--	130	128	1,200	1,316	--	118	111
Fruits, nuts, and preps. (mt)	3,689	3,896	--	335	348	4,282	4,235	4,500	298	313
Fruit juices incl.										
froz. (1,000 hectoliters) ¹	9,719	10,689	--	1,031	873	634	662	--	62	58
Vegetables and preps. (mt)	3,142	3,402	--	273	297	3,822	4,152	2,800	367	369
Tobacco, unmanufactured (mt)	222	222	--	27	23	1,390	1,553	1,600	188	158
Cotton, excl. linters (mt) ⁶	1,497	1,568	1,600	185	193	2,715	2,682	2,700	315	308
Seeds (mt)	895	1,098	--	101	73	795	884	900	81	82
Sugar, cane or beet (mt) ¹	244	125	--	6	12	95	54	--	3	5
Oilseeds and products (mt)	34,213	36,665	36,700	2,952	3,030	10,792	12,057	11,200	1,044	897
Oilseeds (mt)	26,181	26,764	--	1,890	1,632	7,875	8,326	--	655	462
Soybeans (mt)	25,566	26,023	25,900	1,820	1,523	7,324	7,379	6,700	544	401
Protein meal (mt)	6,131	7,311	--	797	1,144	1,542	1,966	--	216	249
Vegetable oils (mt)	1,901	2,590	--	266	255	1,375	1,766	--	173	186
Essential oils (mt)	44	45	--	4	4	593	588	--	77	52
Other	132	173	--	14	8	3,948	4,287	--	352	364
Total	155,812	143,978	149,200	12,170	11,765	60,445	57,245	56,000	4,984	4,733
IMPORTS										
Animals, live (no.) ¹	4,871	5,331	--	433	574	1,545	1,594	1,600	127	149
Meats and preps., excl. poultry (mt)	1,039	1,154	1,200	98	108	2,295	2,630	2,800	222	239
Beef and veal (mt)	708	797	--	68	76	1,341	1,609	--	132	153
Pork (mt)	252	261	--	21	21	728	754	--	64	56
Dairy products (mt) ¹	347	354	--	28	33	1,274	1,225	1,400	101	100
Poultry and products ¹	--	--	--	--	--	181	195	--	14	14
Fats, oils, and greases (mt)	59	80	--	7	6	49	60	--	6	5
Hides and skins, incl. furskins (mt)	--	--	--	--	--	205	206	--	18	19
Wool, unmanufactured (mt)	44	44	--	3	4	152	154	--	11	15
Grains and feeds (mt)	6,784	8,342	8,700	732	658	2,657	2,963	3,200	239	243
Fruits, nuts, and preps., excl. juices (mt) ⁷	6,962	7,252	7,500	756	838	3,640	3,837	5,100	400	420
Bananas and plantains (mt)	4,001	3,998	4,000	348	394	1,184	1,220	1,300	111	111
Fruit juices (1,000 hectoliters) ¹	28,002	27,807	30,000	2,339	2,679	913	829	--	76	69
Vegetables and preps. (mt)	4,071	4,218	4,800	524	625	3,526	3,707	4,000	436	483
Tobacco, unmanufactured (mt)	302	294	400	16	15	923	1,089	1,400	70	52
Cotton, unmanufactured (mt)	189	17	--	2	0	300	20	--	2	0
Seeds (mt)	199	224	--	40	43	310	371	--	54	54
Nursery stock and cut flowers ¹	--	--	--	--	--	952	1,004	1,200	86	85
Sugar, cane or beet (mt)	2,891	2,913	--	218	84	1,087	984	--	78	31
Oilseeds and products (mt)	3,419	3,963	3,600	325	405	2,147	2,242	2,100	204	201
Oilseeds (mt)	776	1,035	--	79	104	330	384	--	30	34
Protein meal (mt)	1,001	1,048	--	76	130	179	188	--	14	19
Vegetable oils (mt)	1,643	1,880	--	170	171	1,637	1,670	--	160	148
Beverages excl. fruit juices (1,000 hectoliters) ¹	20,138	23,792	--	2,043	2,092	2,903	3,375	--	250	316
Coffee, tea, cocoa, spices (mt)	2,256	2,265	--	229	238	4,797	6,048	--	532	608
Coffee, incl. products (mt)	1,123	1,180	1,200	122	115	2,788	3,886	3,400	357	376
Cocoa beans and products (mt)	821	767	800	77	90	1,400	1,471	1,600	124	165
Rubber and allied gums (mt)	1,034	1,068	1,100	95	105	1,468	1,229	1,300	121	95
Other	--	--	--	--	--	2,321	2,528	--	208	255
Total	--	--	--	--	--	33,643	36,289	38,000	3,257	3,453

-- = Not available. F = forecast. 1997 data are from *Foreign Agricultural Trade of the U.S.* 1998 fiscal year forecasts are from *Outlook for U.S.*

Agricultural Exports. 1. Not included in total volume. 2. Forecast includes only beef, pork, and variety meat. 3. Forecast includes pulses. 4. Forecast includes wheat flour. 5. Forecast excludes grain products. 6. Forecast includes linters. 7. Forecast includes juice. Note: totals include transshipments through Canada, but transshipments are not distributed by commodity as previously. *Information contact: Mary Fant (202) 694-5272*

Table 28—U.S. Agricultural Exports by Region

Region & country	Calendar year			Mar		Change from year earlier			Mar	
	1996	1997	1998	1997	1998	1996	1997	1998	1997	1998
	\$ million					Percent				
WESTERN EUROPE	9,702	9,540	9,500	984	712	7	-2	--	11	-28
European Union ¹	9,322	8,918	8,800	902	683	7	-4	--	6	-24
Belgium-Luxembourg	749	668	--	61	40	14	-11	--	18	-34
France	524	570	--	51	40	-2	9	--	24	-21
Germany	1,489	1,319	--	126	94	20	-11	--	-21	25
Italy	796	756	--	67	83	13	-5	--	-8	23
Netherlands	2,218	1,928	--	192	145	1	-13	--	-15	-25
United Kingdom	1,233	1,312	--	114	110	15	6	--	15	-3
Portugal	291	249	--	45	12	7	-14	--	14	-73
Spain incl. Canary Islands	1,124	1,140	--	152	97	-9	1	--	75	-36
Other Western Europe	380	622	700	82	29	10	64	--	109	-65
Switzerland	211	517	--	74	24	0	144	--	223	-67
EASTERN EUROPE	439	282	300	16	24	44	-36	--	-35	52
Poland	232	121	--	5	16	96	-48	--	-69	198
Former Yugoslavia	88	96	--	7	2	12	9	--	-151	-66
Romania	57	16	--	1	1	-7	-72	--	36	299
NEWLY INDEPENDENT STATES	1,747	1,483	1,200	105	122	31	-15	--	-23	17
Russia	1,328	1,204	1,000	88	102	29	-9	--	23	15
ASIA ²	28,560	25,624	21,500	2,335	2,069	1	-10	--	-15	-11
West Asia (Mideast)	2,513	2,553	2,500	179	230	1	2	--	-36	28
Turkey	637	727	--	63	65	19	14	--	-22	3
Iraq	3	82	--	0	9	31	2,913	--	0	0
Israel, incl. Gaza and W. Bank	617	537	500	37	37	28	-13	--	-43	1
Saudi Arabia	551	618	600	44	53	6	12	--	-46	20
South Asia	653	760	800	88	32	-36	16	--	77	-64
Bangladesh	88	120	--	11	12	-60	37	--	128	-7
India	113	155	--	12	12	-42	38	--	55	0
Pakistan	352	442	500	65	6	-22	26	--	-27	-90
China	2,092	1,600	1,600	145	182	-21	-24	--	-39	26
Japan	11,704	10,532	10,300	932	871	5	-10	--	-7	-7
Southeast Asia	3,270	2,988	2,300	273	187	7	-9	--	12	-32
Indonesia	852	772	--	49	26	4	-9	--	7	-48
Philippines	892	873	800	97	56	16	-2	--	-2	-43
Other East Asia	8,327	7,191	6,500	718	567	6	-14	--	17	-21
Korea, Rep.	3,871	2,857	2,400	297	252	3	-26	--	8	-15
Hong Kong	1,490	1,712	1,700	143	137	-1	15	--	48	-4
Taiwan	2,965	2,616	2,400	277	174	14	-12	--	15	-37
AFRICA	2,877	2,267	2,300	140	181	-3	-21	--	-60	29
North Africa	1,986	1,559	1,500	68	108	-4	-21	--	-65	58
Morocco	244	163	--	14	9	49	-33	--	-32	-35
Algeria	322	315	300	15	28	-25	-2	--	-49	84
Egypt	1,319	964	900	33	61	-4	-27	--	-76	83
Sub-Sahara	891	707	800	72	73	-3	-21	--	-47	2
Nigeria	190	115	--	8	8	51	-39	--	-66	3
Rep. S. Africa	309	220	--	21	29	10	-29	--	-55	38
LATIN AMERICA and CARIBBEAN	10,486	10,363	10,800	802	985	30	-1	--	-7	23
Brazil	588	536	500	35	24	10	-9	--	-40	-32
Caribbean Islands	1,419	1,501	--	115	133	10	6	--	-12	16
Central America	1,006	1,047	--	82	89	15	4	--	32	8
Colombia	631	538	--	45	56	33	-15	--	-23	24
Mexico	5,447	5,184	5,800	411	562	54	-5	--	-12	37
Peru	310	193	--	16	17	3	-38	--	-55	3
Venezuela	483	571	600	55	51	-1	18	--	46	-7
CANADA	6,146	6,795	6,900	561	596	6	11	--	11	6
OCEANIA	489	550	600	42	42	-4	13	--	-13	-1
TOTAL	60,445	57,245	56,000	4,984	4,733	7	-5	--	-7	-5
Developed countries	28,890	28,431	--	2,567	2,281	6	-2	--	-1	-11
Developing countries	27,681	25,687	--	2,164	2,141	10	-7	--	-7	-1
Other countries	3,873	3,128	--	253	311	-3	-19	--	-41	23

-- = Not available. Annual values for the most recent year are forecasts. 1. Austria, Finland, and Sweden are included in the European Union.

2. Asia forecasts exclude West Asia (Mideast). Note: Adjusted for transshipments through Canada, but transshipments are not distributed as previously.

Information contact: Mary Fant (202) 694-5272

Farm Income

Table 29—Farm Income Statistics

	Calendar year									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	\$ billion									
1. Farm receipts	169.4	177.8	176.1	179.5	186.6	190.4	197.8	213.3	218.4	213.6
Crops (incl. net CPC loans)	76.9	80.3	82.1	85.7	87.5	93.1	100.7	109.4	110.4	107.7
Livestock	83.9	89.2	85.8	85.6	90.2	88.2	87.0	92.9	96.6	95.0
Farm related ¹	8.6	8.2	8.2	8.2	9.0	9.2	10.1	11.0	11.4	10.9
2. Direct Government payments	10.9	9.3	8.2	9.2	13.4	7.9	7.3	7.3	7.9	7.4
Cash payments	9.1	8.4	8.2	9.2	13.4	7.9	7.3	7.3	7.9	7.4
Value of PIK commodities	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3. Gross cash income (1+2) ²	180.3	187.1	184.3	188.7	200.1	198.3	205.0	220.6	226.3	221.0
4. Nonmoney income ³	7.9	7.9	7.8	7.6	8.1	9.2	9.8	10.2	10.9	11.6
5. Value of inventory change	3.8	3.3	-0.2	4.2	-4.5	8.2	-3.9	2.7	-0.1	-1.5
6. Total gross farm income (3+4+5)	191.9	198.2	191.9	200.5	203.6	215.7	210.9	233.5	237.1	231.1
7. Cash expenses ⁴	127.5	134.2	134.0	133.6	141.2	147.6	153.9	160.6	165.8	164.8
8. Total expenses	146.7	153.4	153.3	152.9	160.5	167.5	174.2	181.3	186.4	185.6
9. Net cash income (3-7)	52.8	52.9	50.3	55.1	58.8	50.7	51.2	59.9	60.5	56.2
10. Net farm income (6-8)	45.3	44.8	38.5	47.5	43.1	48.3	36.7	52.2	50.7	45.5

Values for last two years are preliminary or forecast. 1. Income from machine hire, custom work, sales of forest products, and other miscellaneous cash sources. 2. Numbers in parentheses indicate the combination of items required to calculate a given item. 3. Value of home consumption of self-produced food and imputed gross rental value of farm dwellings. 4. Excludes capital consumption, perquisites to hired labor, and farm household expenses. Total may not add because of rounding. Note: 1988-92 accounts (primarily expenses) have been revised to reflect improved methods for estimating farm income. *Information contact: Dave Peacock (202) 694-5582*

Table 30—Average Income to Farm Operator Households¹

	1991	1992	1993	1994	1995	1996	1997F	1998F
	\$ per farm							
Net cash farm business income ²	10,678	11,320	11,248	11,389	11,218	13,502	--	--
Less depreciation ³	5,127	5,187	6,219	6,466	6,795	6,906	--	--
Less wages paid to operator ⁴	441	216	454	425	522	531	--	--
Less farmland rental income ⁵	323	360	534	701	769	672	--	--
Less adjusted farm business income due to other household(s) ⁶	1,093	961	872	815	649	1,094	--	--
	\$ per farm operator household							
Equals adjusted farm business income	3,694	4,596	3,168	2,981	2,484	4,300	--	--
Plus wages paid to operator	441	216	454	425	522	531	--	--
Plus net income from farmland rental ⁷	323	360	--	--	1,053	1,178	--	--
Equal farm self-employment income	4,458	5,172	3,623	3,407	4,059	6,009	--	--
Plus other farm-related earnings ⁸	1,352	2,008	1,192	970	661	1,898	--	--
Equals earnings of the operator household from farming activities	5,810	7,180	4,815	4,376	4,720	7,906	6,363	5,524
Plus earnings of the operator household from off-farm sources ⁹	31,638	35,731	35,408	38,092	39,671	42,455	42,292	43,709
Equals average farm operator household income	37,447	42,911	40,223	42,469	44,392	50,361	48,655	49,233
	\$ per U.S. household							
U.S. average household income ¹⁰	37,922	38,840	41,428	43,133	44,938	47,123	--	--
	Percent							
Average farm operator household income as percent of U.S. average household income	98.7	110.5	97.1	98.5	98.8	106.9	--	--
Average operator household earnings from farming activities as percent of average operator household income	15.5	16.7	12.0	10.3	10.6	15.7	--	--

-- = Not available. Values in the last three years preliminary or forecast. 1. This table derives farm operator household income estimates from the Agricultural Resource Management Study (ARMS) that are consistent with Current Population Survey (CPS) methodology. The CPS, conducted by the Bureau of the Census, is the source of official U.S. household income statistics. The CPS defines income to include any income received as cash. The CPS definition departs from a strictly cash concept by including depreciation as an expense that farm operators and other self-employed people subtract from gross receipts when reporting net cash income. 2. A component of farm-sector income. Excludes income of contractors and landlords as well as the income of farms organized as nonfamily corporations or cooperatives, and farms run by a hired manager. Includes income of farms organized as proprietorships, partnerships, and family corporations. 3. Consistent with the CPS definition of self-employed income, reported depreciation expenses are subtracted from net cash farm income. The ARMS collects data on farm business depreciation used for tax purposes. 4. Wages paid to the operator are excluded because they are not shared among other households that have claims on farm business income. These wages are added to the operator household's adjusted farm business income to obtain farm self-employment income. 5. Gross rental income is excluded because net rental income from farm operation is added below to income received by the household. 6. More than one household may have a claim on the income of a farm business. On average, 1.1 households share the income of a farm business. 7. Includes net rental income from the farm business. Also includes net rental income from farmland held by household members that is not part of the farm business. In 1991 and 1992, gross rented income from the farm business was used because net rental income data were not collected. In 1993 and 1994, net rental income data were collected as part of off-farm income. 8. Wages paid to other operator household members by the farm business, and net income from a farm business other than the one surveyed. In 1996, also includes the value of commodities provided to household members for farm work. 9. Wages, salaries, net income from nonfarm businesses, interest, dividends, transfer payments, etc. In 1993 and 1994, also includes net rental income from farmland. 10. From the CPS. Sources: U.S. Department of Agriculture, Economic Research Service, 1991, 1992, 1993, 1994, and 1995 Farm Costs and Returns Survey (FCRS), and 1996 Agricultural Resource Management Study for farm operator household data. U.S. Department of Commerce, Bureau of the Census Current Population Survey (PCS), for average household income. *Information contact: Bob Hoppe (202) 694-5572 or e-mail rhoppe@econ.ag.gov*

Table 31—Balance Sheet of the U.S. Farming Sector

	Calendar year ¹									
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
	<i>\$billion</i>									
Assets										
Real estate	600.8	620.0	625.6	642.8	678.3	712.4	761.3	805.4	852.9	895.6
Non-real estate	211.6	219.8	218.0	226.2	232.4	230.6	224.1	229.5	230.1	235.9
Livestock and poultry	66.2	70.9	68.1	71.0	72.8	67.9	57.8	60.1	58.5	59.0
Machinery and motor vehicles	21.9	21.5	20.7	22.7	23.2	23.1	27.2	30.6	28.0	29.0
Crops stored ²	2.6	2.8	2.7	3.9	3.8	5.0	3.4	4.4	4.7	4.5
Purchased inputs	36.8	38.3	40.6	43.1	46.6	47.9	49.0	48.9	49.0	50.5
Financial assets	812.4	839.9	843.5	868.9	910.7	943.0	985.4	1,034.9	1,083.0	1,131.5
Liabilities										
Real estate debt ³	76.0	74.7	74.9	75.4	76.3	78.0	79.6	81.9	84.1	86.5
Non-real estate debt ⁴	61.9	63.2	64.3	63.6	65.9	69.1	71.5	74.2	78.1	81.2
Total farm debt	137.9	137.9	139.2	139.0	142.2	147.1	151.0	156.2	162.2	167.6
Total farm equity	674.5	701.9	704.3	729.9	768.5	795.9	834.3	878.7	920.8	963.8
	<i>Percent</i>									
Selected ratios										
Debt to assets	17.7	17.0	16.4	16.5	16.0	15.6	15.6	15.3	15.1	15.0
Debt to equity	21.6	20.4	19.6	19.8	19.0	18.5	18.5	18.1	17.8	17.6
Debt to net cash income	299	280	278	290	253	228	277	296	261	280

Values in the last two columns are forecasts. 1. As of December 31. 2. Non-CCC crops held on farms plus value above loan rates for crops held under CCC. 3. Excludes debt on operator dwellings, but includes CCC storage and drying facilities loans. 4. Excludes debt for nonfarm purposes. *Information contact: Dave Peacock (202) 694-5582*

Table 32—Cash Receipts from Farm Marketings, by State

Region and State	Livestock and products				Crops ¹				Total ¹			
	1995	1996	Jan 1998	Feb 1998	1995	1996	Jan 1998	Feb 1998	1995	1996	Jan 1998	Feb 1998
	\$ million ²											
NORTH ATLANTIC												
Maine	250	262	21	31	201	224	19	18	450	485	40	49
New Hampshire	63	72	6	6	86	89	6	6	149	161	13	12
Vermont	380	437	38	35	90	98	4	4	470	535	42	39
Massachusetts	99	109	9	8	336	369	12	12	436	478	21	20
Rhode Island	9	11	1	1	70	72	3	4	79	83	4	4
Connecticut	228	237	18	17	230	252	13	13	458	489	30	29
New York	1,852	2,045	164	154	1,006	998	75	71	2,859	3,043	239	225
New Jersey	196	196	15	14	577	605	23	25	773	801	39	39
Pennsylvania	2,553	2,865	258	228	1,216	1,278	109	97	3,769	4,143	367	325
NORTH CENTRAL												
Ohio	1,589	1,945	161	143	3,094	3,177	366	236	4,684	5,122	528	379
Indiana	1,759	1,895	129	121	3,428	3,663	518	280	5,187	5,558	647	400
Illinois	1,926	2,061	123	151	6,537	6,989	1,415	618	8,462	9,050	1,539	770
Michigan	1,343	1,448	119	115	2,283	2,195	212	129	3,626	3,643	332	244
Wisconsin	3,949	4,288	367	342	1,725	1,773	172	93	5,674	6,062	540	435
Minnesota	3,448	4,168	315	320	3,681	4,641	487	199	7,129	8,809	801	518
Iowa	5,022	5,457	385	366	6,234	7,396	1,058	492	11,256	12,853	1,443	858
Missouri	2,285	2,450	140	142	2,087	2,500	391	202	4,372	4,950	531	344
North Dakota	567	537	74	61	2,574	2,996	215	141	3,141	3,532	288	202
South Dakota	1,700	1,633	190	153	1,696	2,051	208	158	3,684	3,98	398	311
Nebraska	5,191	5,277	385	358	3,763	4,177	576	316	8,953	9,454	962	674
Kansas	4,536	4,570	348	359	3,035	3,299	406	207	7,572	7,869	754	566
SOUTHERN												
Delaware	517	573	46	37	162	184	7	8	679	757	53	45
Maryland	834	901	77	64	572	633	27	25	1,405	1,534	105	89
Virginia	1,393	1,478	143	123	838	900	52	36	2,230	2,378	195	159
West Virginia	312	308	23	23	79	80	7	5	391	388	30	28
North Carolina	3,726	4,427	320	270	3,165	3,404	175	133	6,891	7,831	495	403
South Carolina	613	737	62	54	816	865	52	35	1,430	1,602	114	88
Georgia	2,789	3,279	283	236	2,348	2,408	173	88	5,136	5,687	456	324
Florida	1,138	1,188	148	111	4,818	4,942	551	532	5,956	6,131	699	643
Kentucky	1,615	1,719	163	129	1,485	1,831	434	181	3,100	3,550	596	310
Tennessee	893	998	97	85	1,228	1,374	157	73	2,120	2,372	254	158
Alabama	2,167	2,363	192	167	705	811	72	29	2,872	3,174	265	196
Mississippi	1,686	1,934	180	163	1,448	1,529	222	90	3,134	3,463	402	253
Arkansas	3,022	3,357	268	223	2,068	2,530	260	115	5,090	5,887	528	338
Louisiana	630	687	60	64	1,383	1,655	184	60	2,013	2,342	245	124
Oklahoma	2,572	2,439	339	345	1,091	1,126	95	56	3,663	3,566	434	401
Texas	8,451	7,758	668	582	4,658	5,295	680	364	13,108	13,053	1,349	946
WESTERN												
Montana	796	797	107	113	1,074	1,230	112	76	1,870	2,027	219	189
Idaho	1,221	1,329	143	121	1,932	2,081	121	92	3,153	3,410	264	213
Wyoming	544	478	77	51	184	184	12	9	728	662	89	60
Colorado	2,743	2,759	198	208	1,414	1,470	159	88	4,156	4,229	357	297
New Mexico	961	1,197	192	188	498	512	27	19	1,458	1,709	219	207
Arizona	810	839	33	29	1,347	1,308	236	97	2,157	2,146	269	126
Utah	591	646	57	57	221	227	18	14	812	873	75	71
Nevada	164	153	16	16	118	133	8	7	282	286	24	23
Washington	1,583	1,664	133	115	3,631	4,017	271	232	5,215	5,681	404	347
Oregon	660	657	67	67	2,049	2,320	124	104	2,709	2,977	192	171
California	5,549	6,213	569	473	16,973	17,096	1,043	820	22,523	23,310	1,613	1,293
Alaska	6	6	2	2	24	23	2	2	30	29	4	4
Hawaii	72	66	6	5	423	417	35	30	494	483	40	36
UNITED STATES	87,004	92,914	7,939	7,244	100,700	109,425	11,608	6,743	187,704	202,339	19,548	13,987

1. Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. 2. Estimates as of end of current month. Totals may not add because of rounding. Information contact: Roger Strickland (202) 694-5592. To receive current monthly cash receipts contact Larry Traub at (202) 694-5593 or ltraub@econ.ag.gov

Table 33—Cash Receipts from Farming

	Annual			1997					1998	
	1995	1996	1997	Feb	Sep	Oct	Nov	Dec	Jan	Feb
	\$ million									
Commodity sales*	187,704	202,339	201,822	14,143	17,194	22,240	21,008	19,015	19,548	13,987
Livestock and products	87,004	92,914	93,449	7,014	8,186	7,531	7,705	7,954	7,939	7,244
Meat animals	44,828	44,382	47,633	3,511	4,490	3,660	3,654	4,101	3,983	3,807
Dairy products	19,894	22,834	21,080	1,656	1,653	1,821	1,822	1,930	1,932	1,782
Poultry and eggs	19,069	22,326	21,362	1,626	1,748	1,816	1,809	1,694	1,757	1,432
Other	3,214	3,371	3,374	221	295	233	420	229	269	222
Crops	100,700	109,425	108,373	7,129	9,009	14,709	13,303	11,062	11,608	6,743
Food grains	10,417	11,550	10,610	736	1,021	881	659	840	854	521
Feed crops	24,282	28,114	25,851	2,129	1,789	2,935	3,442	2,624	3,843	1,980
Cotton (lint and seed)	6,851	7,461	6,914	546	257	1,079	1,497	1,216	1,176	512
Tobacco	2,548	2,796	3,072	52	579	579	290	782	408	135
Oil-bearing crops	15,466	17,756	19,518	1,408	1,002	4,500	2,374	1,664	2,679	1,246
Vegetables and melons	14,891	14,349	14,244	738	1,590	1,591	870	873	1,044	843
Fruits and tree nuts	11,074	11,714	12,169	583	1,336	1,598	1,833	1,334	596	523
Other	15,170	15,686	15,995	937	1,435	1,546	2,338	1,728	1,008	982
Government payments	7,253	7,281	7,460	79	2,958	1,598	34	739	1,829	93
Total	194,957	209,620	209,282	14,222	20,152	23,838	21,042	19,754	21,377	14,080

Annual values for the most recent year and monthly values for the current year are preliminary. *Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. *Information contact:* Roger Strickland (202) 694-5592. To receive current monthly cash receipts, contact Larry Traub at (202)694-5593 or ltraub@econ.ag.gov.

Table 34—Farm Production Expenses

	Calendar year									
	1989	1990	1991	1992	1993	1994	1995	1996	1997 F	1998 F
	\$ million									
Feed purchased	20,744	20,388	19,333	20,133	21,431	22,631	23,829	25,234	25,168	24,415
Livestock and poultry purchased	12,935	14,642	14,129	13,574	14,597	13,270	12,335	11,148	13,960	13,249
Seed purchased	4,397	4,519	5,113	4,913	5,165	5,376	5,463	6,112	6,392	6,346
Farm-origin inputs	38,076	39,548	38,575	38,620	41,194	41,277	41,628	42,495	45,519	44,010
Fertilizer and lime	8,174	8,206	8,666	8,331	8,398	9,180	10,033	10,934	10,825	10,927
Fuels and oils	4,772	5,790	5,607	5,298	5,350	5,312	5,448	5,736	5,664	5,646
Electricity	2,648	2,606	2,633	2,610	2,676	2,682	2,968	3,198	3,142	3,116
Pesticides	5,011	5,363	6,321	6,471	6,723	7,225	7,726	8,525	8,730	8,753
Manufactured inputs	20,605	21,965	23,228	22,710	23,147	24,398	26,175	28,393	28,360	28,442
Short-term interest	6,743	6,656	6,130	5,395	5,333	5,954	6,685	6,862	7,000	7,100
Real estate interest ¹	7,190	6,781	5,989	5,742	5,489	5,782	6,042	6,357	6,400	6,500
Total interest charges	13,933	13,437	12,119	11,138	10,822	11,735	12,726	13,218	13,400	13,600
Repair and maintenance ¹	8,407	8,554	8,632	8,471	9,193	9,083	9,458	10,304	10,656	10,834
Contract and hired labor	12,029	14,113	13,900	14,000	15,006	15,309	16,316	17,348	18,181	18,797
Machine hire and custom work	3,378	3,574	3,523	3,782	4,420	4,790	4,792	4,692	4,861	4,840
Marketing, storage, and transportation	4,207	4,211	4,719	4,541	5,648	6,821	7,180	6,818	7,193	7,188
Misc. operating expenses ^{1,2}	12,977	13,844	14,654	14,061	15,554	17,146	18,270	17,985	18,082	17,905
Other operating expenses	40,945	44,297	45,427	44,854	49,822	53,148	56,016	57,147	58,972	59,564
Capital consumption ¹	18,117	18,128	18,184	18,310	18,378	18,688	18,914	18,930	19,042	19,084
Taxes ¹	5,505	5,862	5,815	6,117	6,177	6,490	6,717	6,828	6,994	7,053
Net rent to nonoperator landlords	9,428	10,052	9,924	11,188	11,009	11,720	11,984	14,293	14,130	13,836
Other overhead expenses	33,050	34,042	33,923	35,614	35,564	36,898	37,615	40,050	40,166	39,973
Total production expenses	146,660	153,290	153,273	152,936	160,548	167,457	174,161	181,303	186,418	185,589

F = Forecast. 1. Includes operator dwellings. 2. Beginning in 1982, miscellaneous operating expenses include other livestock purchases, dairy assessments and feeding fees paid by nonoperators. Totals may not add because of rounding. *Information contact:* Chris McGath (202) 694-5579, Dave Peacock (202) 694-5582

Table 35—CCC Net Outlays by Commodity & Function

	Fiscal year									
	1990	1991	1992	1993	1994	1995	1996	1997	1998 E	1999 E
	<i>\$ million</i>									
COMMODITY/PROGRAM										
Feed grains:										
Corn	2,435	2,387	2,105	5,143	625	2,090	2,021	2,587	2,648	2,577
Grain sorghum	349	243	190	410	130	153	261	284	286	280
Barley	-94	71	174	186	202	129	114	109	145	126
Oats	-5	12	32	16	5	19	8	8	9	8
Corn and oat products	8	9	9	10	10	1	0	0	0	0
Total feed grains	2,693	2,722	2,510	5,765	972	2,392	2,404	2,988	3,088	2,991
Wheat and products	796	2,805	1,719	2,185	1,729	803	1,491	1,332	1,556	1,468
Rice	667	867	715	887	836	814	499	459	519	471
Upland cotton	-79	382	1,443	2,239	1,539	99	685	561	859	878
Tobacco	-307	-143	29	235	693	-298	-496	-156	-183	-160
Dairy	505	839	232	253	158	4	-98	67	191	116
Soybeans	5	40	-29	109	-183	77	-65	5	10	22
Peanuts	1	48	41	-13	37	120	100	6	0	-1
Sugar	15	-20	-19	-35	-24	-3	-63	-34	-38	-39
Honey	47	19	17	22	0	-9	-14	-2	0	0
Wool	104	172	191	179	211	108	55	0	0	0
Operating expense ¹	618	625	6	6	6	6	6	6	5	6
Interest expenditure	632	745	532	129	-17	-1	140	-111	-56	-28
Export programs ²	-34	733	1,459	2,193	1,950	1,361	-422	125	111	547
Disaster/tree/ livestock assistance ³	161	121	1,054	944	2,566	660	95	130	15	4
Conservation reserve program	0	0	0	0	0	0	7	105	297	346
Other conservation programs	647	155	-162	949	-137	-103	320	104	394	432
Total	6,471	10,110	9,738	16,047	10,336	6,030	4,646	7,256	8,566	8,747
Function										
Price support loans (net)	-399	418	584	2,065	527	-119	-951	110	-88	-119
Cash direct payments: ⁴										
Production flexibility contract	0	0	0	0	0	0	5,141	6,320	5,719	5,512
Deficiency	4,178	6,224	5,491	8,607	4,391	4,008	567	-1,118	-13	0
Diversion	0	0	0	0	0	0	0	0	0	0
Dairy termination	189	96	2	0	0	0	0	0	0	0
Loan Deficiency	3	21	214	387	495	29	0	0	0	0
Other	0	0	140	149	171	97	95	7	203	250
Disaster	0	0	0	0	0	0	0	0	0	0
Conservation reserve program	0	0	0	0	0	0	2	1,671	1,798	1,694
Other conservation programs	0	0	0	0	0	0	0	85	244	303
Non-Insured Assistance (NAP)	0	0	0	0	0	0	2	52	69	80
Total direct payments	4,370	6,341	5,847	9,143	5,057	4,134	5,807	7,017	8,020	7,839
Crop disaster ³	5	6	960	872	2,461	584	14	2	0	0
Emergency livestock/tree/ forage assistance	156	115	94	72	105	76	81	128	15	4
Purchases (net)	-48	646	321	525	293	-51	-249	-60	129	74
Producer storage payments	185	1	14	9	12	23	0	0	0	0
Processing, storage, and transportation	278	240	185	136	112	72	51	33	33	34
Operating expense ¹	618	625	6	6	6	6	6	6	5	6
Interest expenditure	632	745	532	129	-17	-1	140	-111	-56	-28
Export programs ²	-34	733	1,459	2,193	1,950	1,361	-422	125	111	547
Other	708	240	-264	897	-170	-55	169	6	397	390
Total	6,471	10,110	9,738	16,047	10,336	6,030	4,646	7,256	8,566	8,747

E = Estimated in the FY 1999 President's Budget which was released February 2, 1998 based on November 1997 supply and demand estimates.

The CCC outlays shown for 1996-1999 include the impact of the Federal Agriculture Improvement and Reform Act of 1996, which was enacted April 4, 1996. Minus (-) indicates a net receipt (excess of repayments or other receipts over gross outlays of funds). 1. Does not include CCC Transfers to General Sales Manager. 2. Includes Export Guarantee Program, Direct Export Credit Program, CCC Transfers to the General Sales Manager, Market Promotion Program, starting in FY 1991 and starting in FY 1992 the Export Guarantee Program-Credit Reform, Export Enhancement Program, Dairy Export Incentive Program, and Technical Assistance to Emerging Markets. 3. Approximately \$1.5 billion in benefits to farmers under the Disaster Assistance Act of 1989 were paid in generic certificates and were not recorded directly as disaster assistance outlays. 4. Includes cash payments only. Excludes generic certificates in FY 86-96.

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Food Expenditures

Table 36—Food Expenditures

	Annual			1998			Year-to-date cumulative		
	1995	1996	1997 P	Feb P	Mar P	Apr P	Feb P	Mar P	Apr P
	\$ billion								
Sales ¹									
At home ²	354.2	367.6	380.2	29.4	28.2	28.5	58.0	89.5	119.5
Away from home ³	280.8	288.5	297.9	22.6	24.7	26.7	45.8	70.5	97.1
	1995 \$ billion								
Sales ¹									
At home ²	367.3	367.4	371.0	28.4	27.1	27.5	58.0	85.2	112.6
Away from home ³	287.7	288.5	289.7	21.6	23.6	25.4	43.9	67.5	92.9
	Percent change from year earlier (\$ billion)								
Sales ¹									
At home ²	3.8	3.8	3.4	5.1	-10.6	-4.8	4.1	-1.1	-2.0
Away from home ³	4.5	2.7	3.0	0.5	-1.5	8.4	1.4	0.3	2.4
	Percent change from year earlier (1995 \$ billion)								
Sales ¹									
At home ²	0.5	0.1	1.0	3.6	-12.0	-6.4	2.3	-2.7	-3.7
Away from home ³	2.2	0.3	0.2	-2.0	-3.9	5.6	-1.2	-2.1	-0.2

R = Revised. P = Preliminary. 1. Food only (excludes alcoholic beverages). Not seasonally adjusted. 2. Excludes donations and home production.

3. Excludes donations, child nutrition subsidies, and meals furnished to employees, patients, and inmates. *Information contact: Annette Clauson (202) 694-5373*

Note: This table differs from Personal Consumption Expenditures (PCE), table 2, for several reasons: (1) this series includes only food, excluding alcoholic beverages and pet food which are included in PCE; (2) this series is not seasonally adjusted, whereas PCE is seasonally adjusted at annual rates; (3) this series reports sales only, but PCE includes food produced and consumed on farms and food furnished to employees; (4) this series includes all sales of meals and snacks, while PCE includes only purchases using personal funds, excluding business travel and entertainment.

For a more complete discussion of the differences, see "Developing an Integrated Information System for the Food Sector," ERS Agr. Econ. Rpt. No. 575, Aug. 1987.

Transportation

Table 37—Rail Rates; Grain & Fruit-Vegetable Shipments

	Annual			1997				1998		
	1995	1996	1997 R	Mar	Oct	Nov R	Dec R	Jan	Feb R	Mar P
Rail freight rate index ¹ (Dec. 1984=100)										
All products	111.7	111.5	112.1	111.6	112.5	112.6	112.6	112.4	112.7	113.6
Farm products	115.6	115.9	120.2	117.3	121.1	123.9	122.3	122.2	120.7	124.7
Grain ²	117.1	118.0	--	--	--	--	--	--	--	--
Food products	111.7	108.8	107.6	106.1	108.4	108.5	108.7	108.7	108.5	108.7
Barge freight rate index ¹ (Dec 1990=100)										
Grain	172.6	129.5	107.1	119.1	162.5	119.7	105.0	95.7	102.8	90.9
Grain shipments										
Rail carloadings (1,000 cars) ³	28.9	25.2	23.2	25.2	25.6	23.8	23.0	23.9	24.6	21.7
Barge shipments (mil. ton) ^{4,5}	3.5	3.1	2.4	3.2	0.0	0.9	--	2.0	--	--
Fresh fruit and vegetable shipments ⁶										
Piggy back (mil. cwt)	1.3	1.1	1.1	1.1	0.7	0.9	0.8	1.0	0.9	0.9
Rail (mil. cwt)	1.9	1.6	1.7	1.6	1.3	1.6	1.7	1.5	1.0	1.1
Truck (mil. cwt)	40.5	35.7	42.6	42.2	39.5	39.9	39.0	38.8	34.2	39.9
Cost of operating trucks hauling produce ⁶										
Fleet operation (cents/mile)	130.3	123.0	135.4	134.7	135.7	136.5	--	--	--	--

P = Preliminary. R = Revised. -- = Not available. 1. Department of Labor, Bureau of Labor Statistics. 2. Discontinued. 3. Weekly average; from Association of American Railroads. 4. Shipments on Illinois and Mississippi waterways, U.S. Corps of Engineers. 5. Annual 1996 is 7-month average. 6. Agricultural Marketing Service, USDA. *Information contact: Jenny Gonzales (202) 694-5296*

Indicators of Farm Productivity

Table 38—Indexes of Farm Production, Input Use, & Productivity¹

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
	1992=100									
Farm output	88	82	89	94	94	100	94	105	100	104
All livestock products	91	94	94	95	98	100	101	105	107	106
Meat animals	95	97	97	97	99	100	100	103	105	100
Dairy products	94	96	95	98	98	100	99	101	103	102
Poultry and eggs	81	83	86	92	96	100	104	110	114	119
All crops	85	75	86	92	91	100	89	106	95	102
Feed crops	84	62	85	88	86	100	76	102	83	98
Food crops	84	76	83	107	82	100	96	96	90	93
Oil crops	88	72	88	87	94	100	85	115	99	107
Sugar	95	91	91	92	96	100	95	106	98	94
Cotton and cottonseed	92	96	75	96	109	100	100	123	112	118
Vegetables and melons	89	81	84	92	97	100	94	106	101	105
Fruit and nuts	95	102	98	97	96	100	107	110	101	101
Farm input ¹	101	101	99	101	102	100	100	101	101	100
Farm labor	102	109	103	103	105	100	95	96	92	100
Farm real estate	100	100	102	101	100	100	98	99	98	99
Durable equipment	120	113	108	105	103	100	97	94	92	89
Energy	102	102	101	100	101	100	100	103	109	105
Fertilizer	106	97	94	97	98	100	111	109	85	89
Pesticides	91	80	92	90	100	100	99	104	95	107
Feed, seed, and purchased livestock	97	96	91	99	99	100	101	102	109	96
Inventories	102	98	92	97	100	100	104	99	107	104
Farm output per unit of input	87	82	90	93	93	100	94	104	99	104
Output per unit of labor										
Farm ²	86	75	86	91	90	100	99	109	109	104
Nonfarm ³	95	95	96	96	97	100	100	101	--	--

Values for latest year preliminary. 1. Includes miscellaneous items not shown separately. 2. Economic Research Service. 3. Bureau of Labor Statistics.

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Food Supply & Use

Table 39—Per Capita Consumption of Major Food Commodities¹

Commodity	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996 P
	<i>Lbs.</i>									
Red meats ^{2,3,4}	117.4	119.5	115.9	112.3	111.9	114.1	112.2	114.8	115.1	112.8
Beef	69.6	68.6	65.4	63.9	63.1	62.8	61.5	63.6	64.4	65.0
Veal	1.3	1.1	1.0	0.9	0.8	0.8	0.8	0.8	0.8	1.0
Lamb & mutton	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.8
Pork	45.6	48.8	48.4	46.4	46.9	49.5	48.9	49.6	49.0	46.0
Poultry ^{2,3,4}	51.0	51.9	53.9	56.3	58.3	60.8	62.5	63.3	62.9	64.3
Chicken	39.4	39.6	40.9	42.4	44.2	46.7	48.5	49.3	48.8	49.8
Turkey	11.6	12.4	13.1	13.8	14.1	14.1	14.0	14.1	14.1	14.6
Fish and shellfish ³	16.1	15.1	15.6	15.0	14.8	14.7	14.9	15.1	14.9	14.7
Eggs ⁴	32.7	31.8	30.5	30.2	30.1	30.3	30.4	30.6	30.2	30.5
Dairy products										
Cheese (excluding cottage) ^{2,5}	24.1	23.7	23.8	24.6	25.0	26.0	26.2	26.8	27.3	27.7
American	12.4	11.5	11.0	11.1	11.1	11.3	11.4	11.5	11.8	12.0
Italian	7.6	8.1	8.5	9.0	9.4	10.0	9.8	10.3	10.4	10.8
Other cheeses ⁶	4.1	4.1	4.3	4.5	4.6	4.7	5.0	5.0	5.0	5.0
Cottage cheese	3.9	3.9	3.6	3.4	3.3	3.1	2.9	2.8	2.7	2.6
Beverage milks ²	226.5	222.3	224.2	221.8	221.2	218.3	213.4	213.5	209.7	210.0
Fluid whole milk ⁷	111.9	105.7	97.5	90.4	87.3	84.0	80.1	78.8	75.3	74.8
Fluid lowfat milk ⁸	100.6	100.5	106.5	108.4	109.9	109.3	106.5	105.9	102.5	101.5
Fluid skim milk	14.0	16.1	20.2	22.9	23.9	25.0	26.7	28.7	31.9	33.7
Fluid cream products ⁹	7.6	7.6	7.8	7.6	7.7	8.0	8.0	8.1	8.4	8.7
Yogurt (excluding frozen)	4.3	4.5	4.2	4.0	4.2	4.2	4.3	4.7	5.1	4.8
Ice cream	18.4	17.3	16.1	15.8	16.3	16.3	16.1	16.1	15.7	15.9
Ice milk	7.4	8.0	8.4	7.7	7.4	7.1	6.9	7.6	7.5	7.6
Frozen yogurt	--	--	2.0	2.8	3.5	3.1	3.5	3.5	3.5	2.7
All dairy products, milk equivalent, milkfat basis ¹⁰	601.2	582.5	563.8	568.5	565.7	565.9	574.0	585.8	584.1	575.6
Fats and oils--total fat content	62.9	63.5	60.8	62.8	65.4	67.4	70.3	68.5	66.8	65.6
Butter and margarine (product weight)	15.2	14.8	14.6	15.3	15.0	15.4	15.8	14.7	13.7	13.4
Shortening	21.4	21.5	21.5	22.2	22.4	22.4	25.1	24.1	22.5	22.2
Lard and edible tallow (direct use)	2.7	2.6	2.1	2.4	3.1	4.1	3.9	4.7	4.9	5.3
Salad and cooking oils	25.4	26.3	24.4	24.8	26.7	27.2	26.8	26.2	26.8	26.0
Fresh fruits ¹¹	121.6	120.9	122.9	116.3	113.0	123.5	124.9	126.4	124.5	129.2
Canned fruit ¹²	18.4	18.5	19.0	18.4	17.1	19.8	18.0	18.3	15.0	16.4
Dried fruit	3.1	3.3	3.3	3.1	3.0	2.8	3.0	3.0	2.8	2.8
Frozen fruit	3.6	3.4	3.7	3.5	3.5	3.8	3.4	2.9	4.2	3.9
Selected fruit juices ¹³	72.8	68.3	70.5	66.2	66.6	63.6	74.9	71.6	75.6	75.5
Vegetables ¹¹										
Fresh	162.4	167.4	172.2	166.2	163.3	171.3	172.3	175.6	176.3	178.7
Canning	99.1	94.8	102.4	110.9	113.3	111.6	112.1	107.6	110.4	109.4
Freezing	67.0	64.2	67.6	70.5	72.8	71.6	76.7	81.4	78.2	83.3
Dehydrated and chips	29.9	29.3	29.9	31.8	32.6	32.1	33.0	31.6	31.2	32.9
Pulses	5.7	7.5	6.3	7.1	7.8	8.2	7.8	8.4	8.5	8.0
Peanuts (shelled)	6.4	6.9	7.0	6.0	6.5	6.2	6.0	5.8	5.7	5.7
Tree nuts (shelled)	2.2	2.3	2.2	2.4	2.2	2.2	2.2	2.3	1.9	2.1
Flour and cereal products ¹⁴	171.4	175.5	174.5	182.0	183.6	186.2	191.0	194.1	192.5	198.5
Wheat flour	129.8	131.7	129.6	136.0	136.9	138.8	143.3	144.5	141.8	148.8
Rice (milled basis)	14.0	14.3	15.2	16.2	16.8	17.5	17.6	19.3	20.1	18.9
Caloric sweeteners ¹⁵	131.6	132.7	133.1	137.0	138.0	141.2	144.4	147.3	149.8	152.0
Coffee (green bean equiv.)	10.2	9.8	10.1	10.3	10.3	10.0	9.1	8.2	8.0	9.0
Cocoa (chocolate liquor equiv.)	3.8	3.8	4.0	4.3	4.6	4.6	4.3	3.9	3.6	--

-- = Not available. P = Preliminary. 1. In pounds, retail weight unless otherwise stated. Consumption normally represents total supply minus exports, nonfood use, and ending stocks. Calendar-year data except fresh citrus fruits, peanuts, tree nuts, and rice which are on crop-year basis. 2. Totals may not add due to rounding. 3. Boneless, trimmed weight. Chicken series revised to exclude amount of ready-to-cook chicken going to pet food as well as some water leakage that occurs when chicken is cut up before packaging. 4. Excludes shipments to the U.S. territories. 5. Whole and part-skim milk cheese. Natural equivalent of cheese and cheese products. 6. Includes Swiss, Brick, Muenster, cream, Neufchatel, Blue, Gorgonzola, Edam, and Gouda. 7. Plain and flavored. 8. Plain and flavored and buttermilk. 9. Heavy cream, light cream, half and half, eggnog, and sour cream and dip. 10. Includes condensed and evaporated milk and dry milk products. 11. Farm weight. 12. Excludes pineapples and berries. 13. Single strength equivalent. 14. Includes rye, corn, oat, and barley products. Excludes quantities used in alcoholic beverages, corn sweeteners, and fuel. 15. Dry weight equivalent.

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